



Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #79 - November 2013



Photo: Charles McColm

FOSS IN COMPUTER REUSE SAVING THOSE OLD MACHINES WITH LINUX

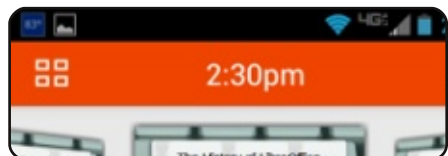
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HowTo



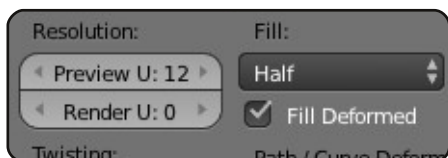
Python p.08



LibreOffice p.10



Use BOINC p.13



Blender p.15



Inkscape p.16



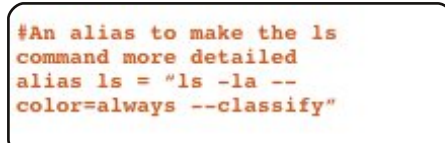
Graphics



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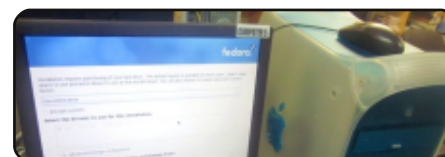
Columns



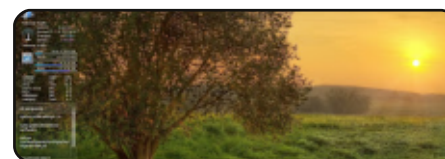
Command & Conquer p.06



Ask The New Guy p.22



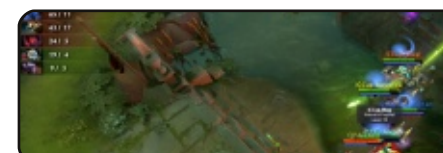
Linux Labs p.25



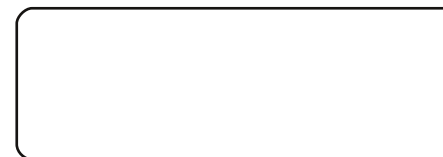
My Desktop p.43



Ubuntu News p.04



Ubuntu Games p.38

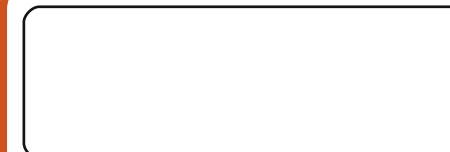


Q&A p.36



Ubuntu Women p.XX

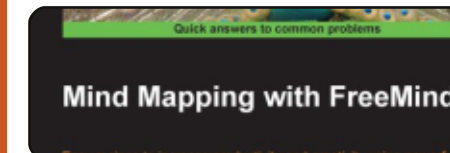
Opinions



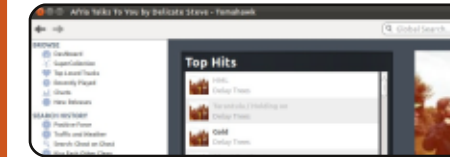
My Story p.28



MyOpinion p.XX



Book Review p.29



Software Showdown p.31



Letters p.34



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WELCOME TO ANOTHER ISSUE OF FULL CIRCLE!

Again, a full house – with Python, LibreOffice, Blender and Inkscape HowTo's. Joined by an article on using the BOINC application. Its main use is in pooling together unused CPU power in PCs the world over to help analyse huge amounts of data. Probably the most well known of which is the SETI@home project.

You'll see from the cover this month that I've put focus on Charles' *Linux Lab* article. I'm a firm believer in reusing old hardware. Just because it's not the latest and greatest doesn't mean it should go unused or abandoned. Someone out there, especially the elderly, could use it to keep in touch over the Internet. Even you, yourself, could put it to use as a file/printer/web server. That old PC shouldn't go unloved!

If you miss the good old days of Gnome 2.x then you might want to have a look at Lucas' *Command & Conquer* article on Cinnamon. Think of it as Gnome 3.x, but made to look and function like 2.x. It's one of the desktop environments that comes with Linux Mint. I'm pretty sure you can install it on any distro to coincide with, or replace, your current desktop. Lucas' article will tell you for sure.

It's almost the end for 2013, but fear not. There'll still be a December issue to help you see in 2014. Especially if you're a Christmas grinch like me...

All the best, and keep in touch!

Ronnie

ronnie@fullcirclemagazine.org



This magazine was created using :



Full Circle Podcast

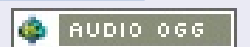
Released monthly, each episode covers all the latest Ubuntu news, opinions, reviews, interviews and listener feedback. The Side-Pod is a new addition, it's an extra (irregular) short-form podcast which is intended to be a branch of the main podcast. It's somewhere to put all the general technology and non-Ubuntu stuff that doesn't fit in the main podcast.

Hosts:

- Les Pounder
- Tony Hughes
- Jon Chamberlain
- Oliver Clark



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UBUNTU NEWS

Written by The Ubuntu News Team





COMMAND & CONQUER

Written by Lucas Westermann

Some Cinnamon?

If you've been a long-time reader, you may have noticed my apparent lack of interest in typical desktop environments – KDE, GNOME, Unity, XFCE, LXDE, etc. In reality, I used to run GNOME 2 on my workstations, but since the introduction of GNOME 3, I've been running lightweight window managers (openbox, XMonad, awesomeWM, etc) instead. The reason for this is simple – I have no interest in having to pull up an overlay and waste processing power on fancy effects in order to use my computer – and GNOME 3 generally requires more of this than any other desktop environment I've ever used. If you're in the same boat as me – generally unhappy with the desktop environments present today, then you'll be happy to know that, this month, I'm going to cover a desktop environment I am quite happy with now: Cinnamon.

What is it?

It's a fork (you can think of it as a TV show spinoff) of GNOME 3, but with the intention of acting

more like GNOME 2. If you've ever used Linux Mint when it was still running GNOME 2, you should have an idea what to expect: A single panel, a menu, and a layout vaguely similar to the typical Windows experience, or most LXDE experiences.

How do I get it?

It's in the universe repository –

simply running `sudo apt-get install cinnamon` should be all you need.

I'm happy with my current desktop environment/window manager – why should I switch?

I'm also quite happy with my AwesomeWM setup, and haven't switched to cinnamon myself – instead, I decided to use Cinnamon and ArchLinux for an older laptop I

loaned out to a guest for his stay at my home. I do, however, use Nemo (Cinnamon's file manager) in my AwesomeWM setup. If you're supplying a Linux-based computer to someone accustomed to Windows, this may be a nice solution for you.

Where's Cinnamon's Display Manager (Login Window)?

Cinnamon does not supply its own display manager (as far as I know). However, it works nicely with any of the desktop managers you might use – including lightdm in Ubuntu, or Gnome Display Manager (GDM). Simply choose the correct session when logging in.

How can I get it if I'm installing Linux?

Linux Mint are the creators of Cinnamon, and as such it's offered on their liveCD. For anyone who doesn't know, Linux Mint is based off Ubuntu. The latest release is Version 15 (codename "Olivia"), and will be supported until January 2014 (though following the 6-



month release cycle, there should be a new release soon). The downloads can be found here: <http://www.linuxmint.com/download.php>. As you can see, there are plenty of options for desktop environments, with Cinnamon at the top of the list.

If you prefer to use your own version of Linux (be it ArchLinux, Ubuntu, Debian, or anything else), you can simply install the package after installing the system.

Where can I find new themes for it?

Most theme sites should carry some Cinnamon themes, but the best listing I have found is on the Cinnamon website: <http://cinnamon-spices.linuxmint.com/themes>. This presents themes from all over the internet, and look very thorough to me.

What about someone who doesn't want a desktop environment?

If you're not interested in Cinnamon or any of the other desktop environments I've mentioned, then the following may



be helpful:

- Do you prefer a typical “floating” layout (à la GNOME/KDE), or would you like to have all open windows on a workspace stack, so they're all visible (tiled)?
- If you're going for floating: fluxbox, openbox, icewm, Compiz
- If tiling sounds interesting, there are two options: dynamic (tiling is done by the system), or manual

(you assign each window a size and position as you like). My preference is dynamic, but you may prefer the extra control.

- Dynamic: AwesomeWM, XMonad, DWM
- Manual: herbstluftwm, ion3, wmfs

There are many, many more that I haven't listed, and not all of them may be available through

official repositories, but it's definitely a start.

How can I try it?

You can boot the Linux Mint liveCD to try it out without touching your actual system. Or you can simply install it alongside your actual desktop environment and try it out for a while. If you don't like it, simply uninstall it again.

I hope at least a few readers have found this article interesting – and if you've found a window manager or desktop environment that works for you and I haven't listed, feel free to email me the name and a screenshot. If I see some interesting ones, I'll post an article highlighting a few. If anyone has questions, suggestions, comments, or requests for articles, feel free to email me at lswest34+fc@gmail.com.



Lucas has learned all he knows from repeatedly breaking his system, then having no other option but to discover how to fix it. You can email Lucas at: lswest34@gmail.com.



While I was working this week, a very wise person by the name of Michael W. suggested that I should consider what happens with floating-point numbers and equality.

Take for example a simple calculation: $1.1 + 2.2$

The answer, you say, is 3.3! Any school-kid who has dealt with fractions knows that. Well, tell your computer. If you start up the Python Interactive Shell and at the prompt type

```
(1.1+2.2) == 3.3
```

you might be surprised that the shell responds

```
"False"
```

WHAT?!?!?!

Now, confused, you type at the prompt:

```
>>>1.1+2.2
```

And the shell responds back:

```
3.3000000000000003
```

You stare at the screen in disbelief and first think "I must have typed something wrong". Then you realize that you didn't. So you type:

```
>>>2.2+3.3
```

```
5.5
```

Now you are even more confused and you think to yourself "Ok. This is either a bug or some kind of sick Easter egg." No, it's neither a bug nor an Easter egg. It's real. While I knew about this a very long time ago, it had slipped into the cobwebs hidden in the dark recesses of my old mind, so I had to bring it up here. What we are seeing is the joy of binary floating-point numbers.

We all know that $\frac{1}{3}$ equates to .3333333333333333... for ever and a day, but take, for example, the fraction $\frac{1}{10}$. Everyone knows that $\frac{1}{10}$ is equal to .1, right? If you use the interactive shell you can see that:

```
>>>1/10
```

```
0
```

Oh, right. We have to have at least one of the values a floating-point value to show any decimal points since an integer/integer returns an integer. So we try again.

```
>>>1/10.0
```

```
0.1
```

Ok. Reality is back. No, not really. Python is simply showing you a rounded version of the answer. So, how do we see the "real" answer? We can use the decimal library to see what's really happening.

```
>>> from decimal import *
```

```
>>> Decimal(1/10.0)
```

```
Decimal('0.100000000000000005511151231257827021181583404541015625')
```

WOW. So let's try our original formula and see what that would show:

```
>>> Decimal(1.1+2.2)
```

```
Decimal('3.300000000000000266453525910037569701671600341796875')
```

It seems to just be getting worse and worse. So what is really happening?

This is called Representation Error, and exists in almost every modern programming language (Python, C, C++, Java, and even Fortran and more), and on almost every modern computer. This is because these machines use IEEE-754 floating-point arithmetic which (on most machines and OS platforms) maps to an IEEE-754 double-precision number. This double-precision number has a precision of 53 bits. So, our 0.1, when represented in this 53-bit double-precision, turns into:

```
0.00011001100110011001100110011001100110011001100110011001100110011010
```

That's close to .1, but not close enough to avoid issues.

So what do we do about it? Well, the quick answer is that you probably can live with it for 90% of

the things we have to do out there in the real world – by using the `round()` method. While you have to decide on the number of decimal points that you must have in your world to carry the precision that you need, for the most part, this will be an acceptable workaround.

I honestly don't remember if we have gone over the `round` method, so I'll briefly go over it. The syntax is very simple:

```
round(v, d)
```

where `v` is the value you want to round and `d` is the number of decimals (maximum) you want after the decimal point. According to the Python documentation, "Values are rounded to the closest multiple of 10 to the power of minus `n` digits; if two multiples are equally close, rounding is done away from 0". All that being said, if the number is 1.4144, and we round it to 3 decimal places, the returned value will be 1.414. If the number is 1.4145 it would be returned as 1.415.

For example, let's use the value of `pi` that comes from the `math` library. (You must import the `math` library before you can do this, by

the way.)

```
>>> math.pi  
3.141592653589793
```

Now, if we wanted to round that value down to 5 decimal places, we would use:

```
>>> round(math.pi, 5)  
3.14159
```

That is the "standard" value of `pi` that most everyone knows off the top of their head. That's great. However, if we set the number of decimal places to be returned to 4, look what happens.

```
>>> round(math.pi, 4)  
3.1416
```

All that sounds good until you run into a value like 2.675 and try to round it to 2 decimal places. The assumption (since it is exactly halfway between 2.67 and 2.68) is that the returned value will be 2.68. Try it.

```
>>> round(2.675, 2)  
2.67
```

That might cause a problem. It goes back to the initial issue we

have been talking about. The actual conversion to a binary floating-point number that is 53 bits long, the number becomes:

```
2.674999999999999822365316059  
9749535221893310546875
```

which then rounds down to 2.67.

The bottom line here is when trying to compare floating-point numbers, be aware that some things just don't translate well.

See you next time!



Greg Walters is owner of RainyDay Solutions, LLC, a consulting company in Aurora, Colorado, and has been programming since 1972. He enjoys cooking, hiking, music, and spending time with his family. His website is www.thedesignatedgeek.net.



The Ubuntu Podcast covers all the latest news and issues facing Ubuntu Linux users and Free Software fans in general. The show appeals to the newest user and the oldest coder. Our discussions cover the development of Ubuntu but aren't overly technical. We are lucky enough to have some great guests on the show, telling us first hand about the latest exciting developments they are working on, in a way that we can all understand! We also talk about the Ubuntu community and what it gets up to.

The show is presented by members of the UK's Ubuntu Linux community. Because it is covered by the Ubuntu Code of Conduct it is suitable for all.

The show is broadcast live every fortnight on a Tuesday evening (British time) and is available for download the following day.

podcast.ubuntu-uk.org



HOW-TO

Written by Elmer Perry

LibreOffice Pt32: Impress Remote

If you have ever given a presentation, you know that moving back to the computer to advance your slides is a pain, especially if, like me, you move around a lot and actively engage your audience. I recently presented for a training session at work and constantly wished I had a remote. The Document Foundation has provided a solution in the Android application Impress Remote. Impress Remote allows you to control your Impress presentation from your Android phone or tablet.

Impress Remote requires LibreOffice version 4.0.1 or greater, and a phone or tablet running Android 2.3 or greater. If you own a recent phone or tablet and your Linux distribution is up to date, you shouldn't have any problem using the program.

SETUP

We will need to make changes to our LibreOffice Impress setup to run the remote program. Start by opening a new or existing presentation. Then Tools > Options

> LibreOffice Impress > General. Check "Enable Remote Control". Click OK. Tools > Options > LibreOffice > Advanced. Check "Enable experimental features". Click OK. Restart LibreOffice and open your presentation.

When we set up the remote control app, we will need the IP address of the computer running LibreOffice. From a Linux terminal prompt, the following command should work for most users:

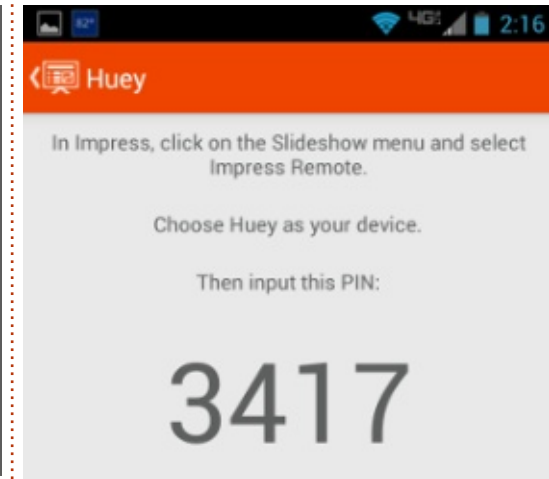
```
ifconfig eth0
```

The information you need is on the line that starts with "inet addr:xxx.xxx.xxx.xxx", where xxx.xxx.xxx.xxx is the IP address for your computer. Write this address down and keep it for later. You will need it when you set up the remote app.

Now, we install the Impress Remote app. From the Google Play store, search for Impress Remote, and install the app on your phone or tablet. The first time you open the app, you see a mostly empty screen. Select "Add WI-FI Computer

Manually". Enter a name for the computer and the IP of the computer. Select Add. Select the computer from the list and let it connect. Back in Impress, Slide Show > Impress Remote. Select your remote device. Enter the code given you by the app. Click Select. In the remote app, click "Start Presentation" to start the presentation.

If your computer has Bluetooth, you can also connect by pairing your phone with your computer. Once you open the app, it will scan for your device using Bluetooth, and you can just select your device from the list. You still need to enable the remote and



experimental options in LibreOffice.

NOTE: If you are running a firewall on your computer, you will need to open TCP port 1599 for communications through WiFi.

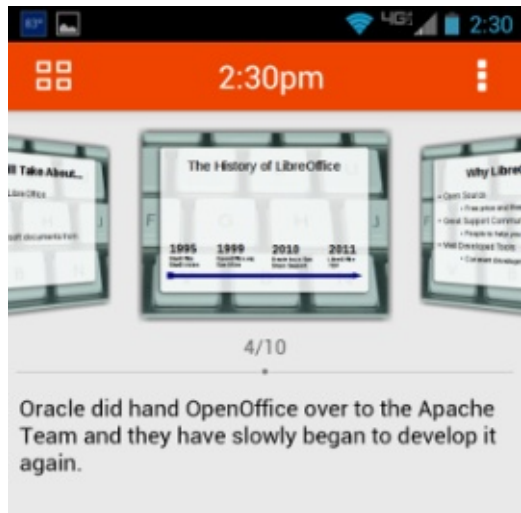
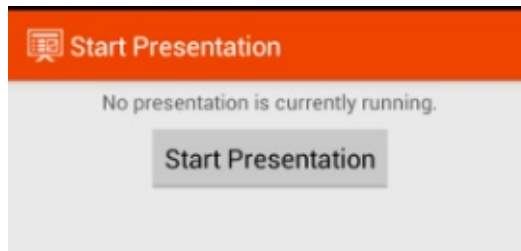
USING IMPRESS REMOTE APP

The remote app is pretty basic, but let's face it, the less complicated the better when you're giving a presentation. The tool bar across the top has the current time, which is handy when your presentation needs to start or end at certain times. To the left of



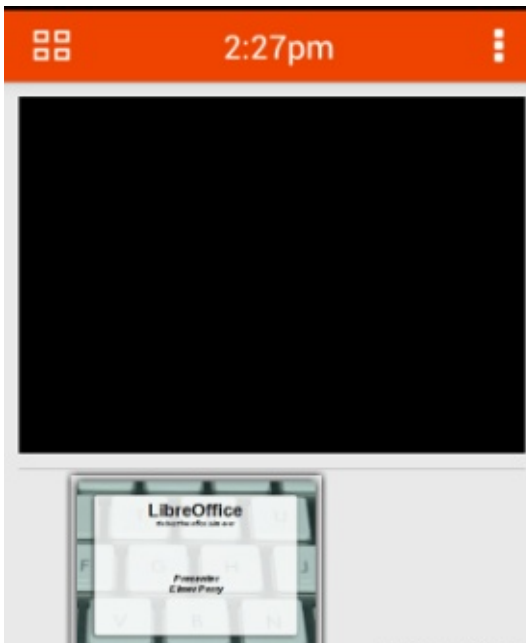
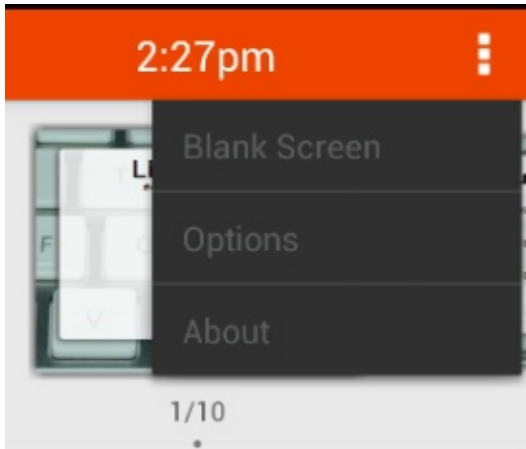
HOWTO - LIBREOFFICE Ppt32

the time is the view switcher, and to the right of the time is the app menu.

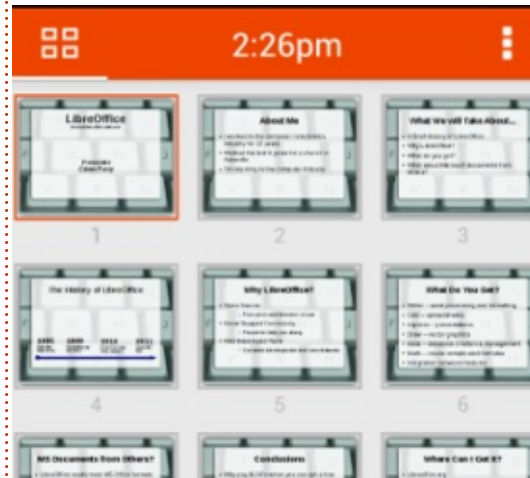


Once you start a presentation, you get the slide scroll view of your presentation. This view is the most useful, because while you are in scroll mode, you can also see any notes you made for the slide. While you can use your finger to move between slides, this is not the best method unless you are just needing to skip forward or move back in your presentation several slides at a time. The best,

or designed, way to move through your presentation is with the volume up and down buttons. The up button moves forward in the presentation, and the down button moves backward in the presentation.

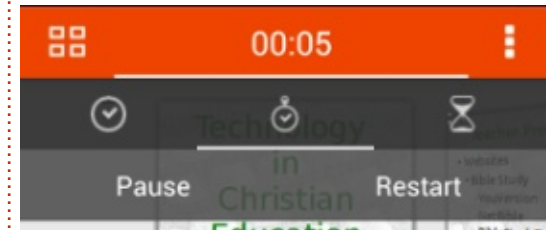


Sometimes, you need to pause a presentation and move your audiences' attention from the screen to something else. Impress Remote gives you the ability to blank the screen. In the app menu, select "Blank Screen". Your presentation screen will go blank. When you are ready to return to the presentation, just click "Return to Slide". The presentation will pick up where you left off.



You can display your slides in two different ways. One we have seen already, the scroll mode. The other is the list mode. You can switch between the two mode by selecting the view switcher button. In the scroll mode, you move quickly to a slide by swiping with your finger. To select a slide in list view, you just select the slide. This

is practical only for fixed slides. Any slides with animations will require the use of the volume up and down buttons.



If you select the clock, you have the option of leaving it as the current time or starting a stopwatch. Select the stopwatch to use it. You will get a Start and Reset option. Press Start to start the timer. The timer will begin to count, and the options will change to Pause and Restart. Select Pause to pause the timer, and Restart to start over from 0.00. This is handy for timing an activity or working on your timing for your presentation.

In the app menu, there is an item for Options. The first option is for using the volume up and down buttons to control the presentation. I can't think of a good reason to uncheck this, but I'm guessing it is there because someone had a reason. The second option is for enabling a wireless connection between the phone

and the computer. This allows the app to automatically search for devices on the wireless network that are running LibreOffice Impress with the remote feature turned on. Finally, the switch computer option allows you to switch to a different computer.

CONCLUSION

When giving a presentation, it is nice to have mobility. The Android app Impress Remote gives you mobility by allowing you to control your Impress presentation from your Android phone or tablet. The app is easy to set up through Bluetooth or WiFi. The interface is not cluttered, making it easy to use and control. Since the app was developed by the same people who develop LibreOffice, future compatibility is almost assured.



Elmer Perry's history of working, and programming, computers involves an Apple][E, adding some Amiga, a generous helping of DOS and Windows, a dash of Unix, and blend well with Linux and Ubuntu. He blogs at <http://eeperry.wordpress.com>

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HOW-TO

Written by Fernando Díaz de la Serna

Use BOINC

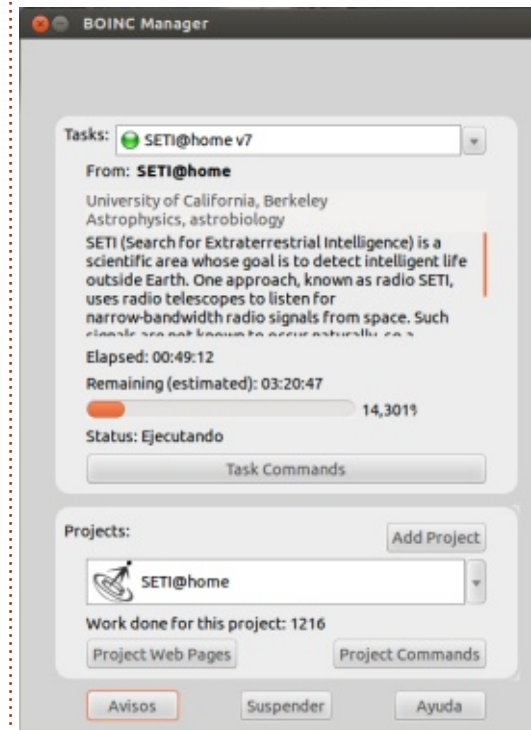
BOINC may sound like an onomatopoeic word, but it's none of that. It is the acronym for Berkeley Open Infrastructure for Network Computing. The intent of BOINC is to make it possible for researchers to tap into the enormous processing power of personal computers around the world. It was originally developed to support the SETI@home project before it became useful as a platform for other distributed applications in areas as diverse as mathematics, medicine, molecular biology, climatology, and astrophysics. The BOINC project started in February 2002.

If you have a soft spot for altruism and social activism, you may want to give it a try—and you may well do since Linux, Free Software and Ubuntu are akin in altruism, social activism and co-operation for the betterment of society.

BOINC adds up the processing power of thousands of computers of volunteers around the world to help process incredible amounts of

data required to accomplish various scientific research projects. It is said that there are over half a million volunteers to date – which amounts to several petabytes of processing power (one petabyte equals 1000 terabytes). It is not that those institutes and universities don't have supercomputers to do the job—it's rather that the extra processing power from volunteers makes it faster. Some projects, though, rely mostly on volunteer aid. The amount of data to be analyzed is simply monumental. In brief, BOINC is software that can profit from the unused CPU and GPU cycles on a computer to do scientific computing.

The Boinc manager is fairly intuitive, and easy to use and understand. Should you find BOINC too demanding or intrusive on your system, the BOINC manager will help you configure the way your computer processes the information. Your first task will be downloaded to your computer – which can take days or weeks to complete processing – depending



on the way you configure the manager and the time your computer is on. You can choose to have BOINC working only when your computer is idle. You can also choose more than one academic project. The manager will alternate processing each one every 60 minutes. The manager also informs you how much your projects have advanced and how much is left to be done.

If you ever decide to uninstall BOINC, it is best to do it with Synaptic as it will totally clean every trace of the application including the files that the program has analyzed. Your account and preferences will remain in the BOINC server in case you wish to reinstall in a different computer; just enter your e-mail and password. You can also install BOINC in more than one computer using the same account.

It is best to download the BOINC manager from the Ubuntu software center (GUI). What you download is the 7.0.27 default version, which is not the latest and it seems to be 32-bit. Don't download just the core application because you'll have to do everything from the terminal (CLI). You can visit the BOINC website where you can find the instructions to download the newest 7.0.65 version (64-bit). The instructions are terribly convoluted, especially for non-geeks and newbies. The old version seems to work alright in Ubuntu 12.04 for 32-bit systems (at least for the SETI@home



project). If your system is 64-bit, then download the 'precise-backports' version which is 7.0.65, and the newest. Backports are adaptations of newer versions of standalone applications for old releases of Ubuntu – in this case, the Precise Pangolin release (12.04). To download it, go to the scroll bar in the upper right of the BOINC download page in the Ubuntu Software Center and click the arrow.

The first time you open the application, you will see a dialog window that will request from you to choose your project(s). Next, you will be asked to open an account with your email address and a password. Finally, the manager window will appear. Wait a few minutes for the server to download the first package of information to be processed by your system. You may see the 'Notices' button twinkling in red. More likely than not, it will tell you that there is a new version to be downloaded. It will direct you to the BOINC Web page. Notice that what you download is not a .deb file which you would install in a jiffy by double-clicking on it. The file is called boinc_7.0.65_x86_64-

pc-linux-gnu.sh which can be opened only if you have previously installed GNU Emacs 23. Even then you will have to be quite geeky to know how to install BOINC with it. Don't be deterred or frustrated. You can still use the version you downloaded from the Ubuntu software center if your system is 32-bit.

On the manager window, you will also see a button called 'Project Web Pages'. That's the button you will use most. It contains the following links: Home Page, Forums, Help, Your Account, Your Preferences, Your Results, Your Computer(s), Your System. You should first go straight to the 'Preferences' link where you will be able to configure how you want BOINC to behave. Search for the sign in blue that says 'Edit your preference' at the bottom of the preferences Web page. The Forums are also great to visit. It strengthens your sense of community in the BOINC

ecosystem very much – as we are used to do in the Ubuntu forums.

There are two annoying glitches you may want to know beforehand—or are they default features of the program? Firstly, the icons on the launcher and on the dock (if any) are impossible to close. Secondly, the manager window closes alright, but every time you close any other window, the manager window suddenly pops up. And not a glitch, but a feature: BOINC will begin working automatically on startup.

Of all the scientific projects you can choose from (apparently 30 of them), I decided to give SETI@home a try (Search for Extraterrestrial Intelligence). The SETI@home project gathers the information from a large array of radio antennas in New Mexico which in turn has to be analyzed for signals from outer space in search for intelligent life. The SETI@home project has been on

for many years and nothing has been found as yet, but it takes a leap of faith to keep trying—and so they do. It thrills me to think that they may one day succeed.

In case that you become an incorrigible fan of the SETI@home project, the following link will take you to a SETI@home site with a myriad of downloadable screensavers, banners, logos, even music (MP3) inspired in the SETI@home project to spur your imagination and enthusiasm.

The SETI@home site is:
<http://setiathome.berkeley.edu/index.php>

BOINC is at:
boinc.berkeley.edu/index.php

Should you be curious to learn more, there is a good article on the SETI@home project in Wikipedia:
<http://en.wikipedia.org/wiki/SETI>

You will find an extensive article on BOINC in Wikipedia:
wikipedia.org/wiki/BOINC





HOW-TO

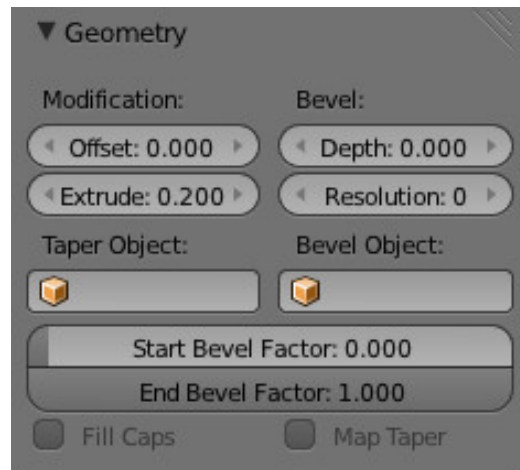
Written by Nicholas Kopakakis

Last month, we created a clover using Bezier curves and also we used a background image to model it. Now it's time to add the third dimension of our model.

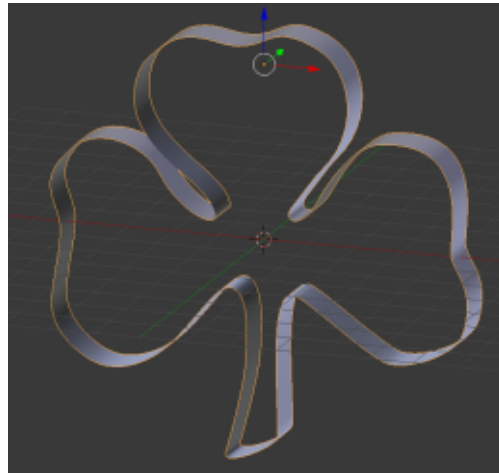
On the right, under the properties window, select the curve tab:



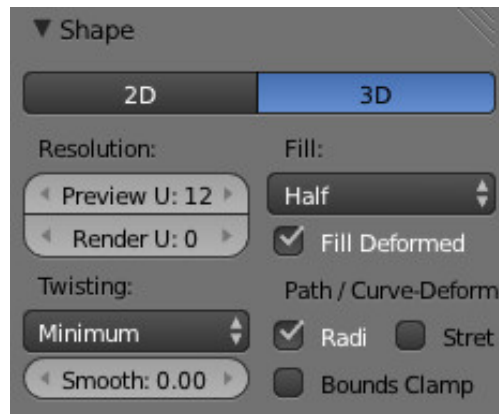
Scroll down and you will find the Geometry panel. Enter the value 0.2 to Extrude as shown in the image below:



You can check the 3D view window to observe that your image starts to have depth.



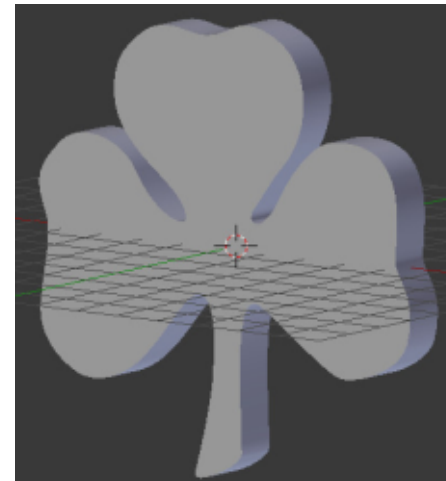
Now, a very interesting thing is under the Shape panel in the properties window:



You can see that the 3D button is selected. Press the 2D button. Under Fill, select Back. Your model "filled" in the back. Now select Front. As you may have expected, your model "filled" in front. As you

can guess, if you choose None, nothing is "filled". Let's select Both.

Now you have a solid 3D model – as you can see in the 3D view window.



Lets tweak it a little. Under the Geometry panel that we mentioned earlier, you have a Bevel parameter. In Depth, enter the value 0.03, and in Resolution enter 2 as the value. You can alter the Depth parameter if you want to Bevel the edges of your model more or less. For me 0.03 is fine.

Now it is time to add materials to your model. Refer to earlier

Blender: Part 9b

issues of Full Circle Magazine if you don't remember how to add materials. My favorite material is glass, so I gave a green glass to my clover. Also, add a white plane as a background to have a better visual result.



Next month, we will introduce text. We will add text to our image that we created this month, but also we will examine a technique to create interesting stuff with our model using a very interesting modifier. Stay tuned!

On the 3rd of November, www.blender.org changed its looks. So, I don't have to suggest another site. Explore the new site and have fun!





HOW-TO

Written by Mark Crutch

The past few articles have presented various techniques and tools for manually tracing a scanned sketch in order to create a vector outline. All that manual work can produce some impressive results, but it does take a while. Fortunately, Inkscape also has an automated tracing tool that can often produce acceptable results in a fraction of the time.

Inkscape's tracing code is based on the venerable Potrace command-line tool, but does some additional pre-processing of

bitmaps before they're passed on to the underlying algorithm. You can open the Trace Bitmap dialog using the Path > Trace Bitmap... menu entry, or by pressing SHIFT-ALT-B.

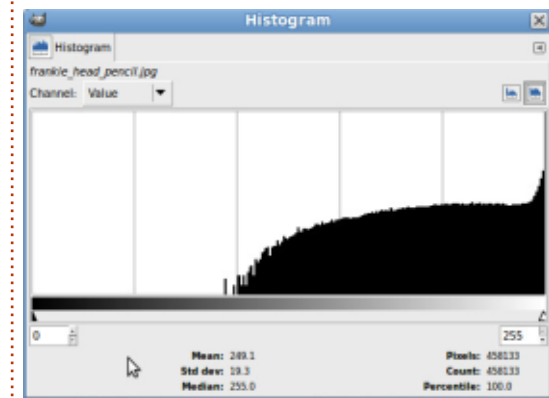
This is one dialog in Inkscape that could really do with a little UI love. It's cramped, unintuitive, contains typos, and the spinboxes don't have the nice context popups of most similar controls in Inkscape. But with a little explanation of the various options, it becomes functional enough even

if it's not going to win any prizes for design.

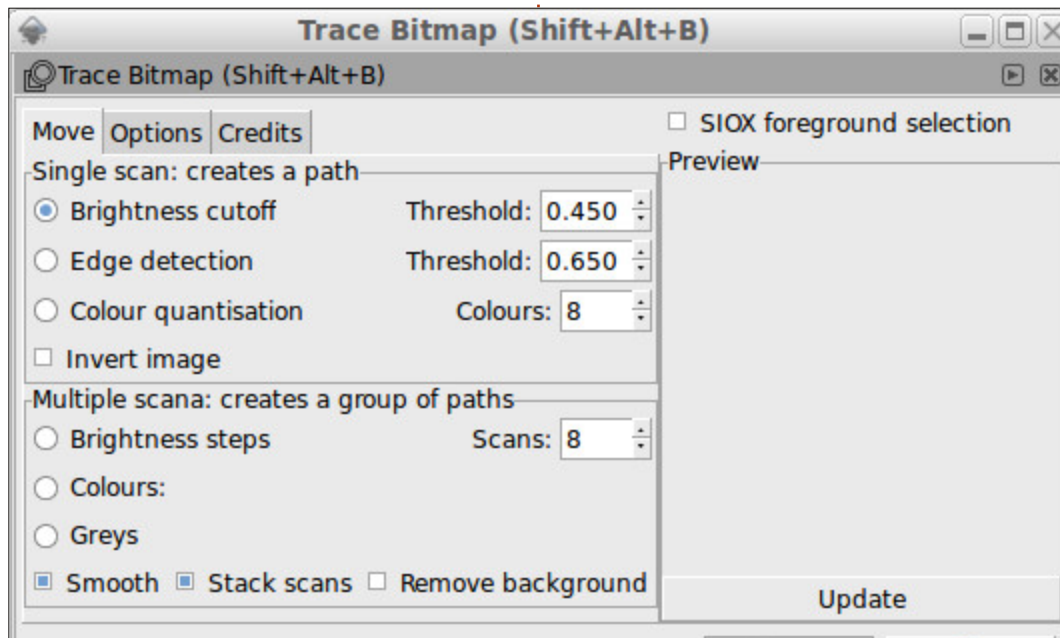
The first thing to note is that the "Move" tab has a pair of groupboxes, "Single scan" and "Multiple scans". As the titles indicate, these result in different traces. The former creates a single path and is useful when you want a clean, hard trace. It's ideal for creating a solid outline from a sketch, or for reproducing a single color logo. The latter creates multiple paths which are grouped together, and is better for converting color or grayscale logos or photographs. Continuing our efforts to create a nice vector version of "Frankie" from the sketch that was introduced in Part 17, I'm going to concentrate on the Single Scan options in this article.

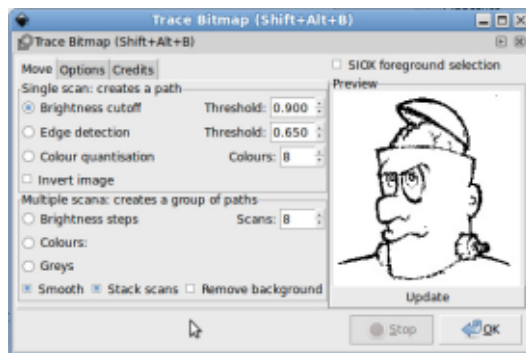
With the sketch imported into Inkscape and selected, clicking the Update button in the Trace Bitmap dialog fills the preview area with... a rather disappointing white rectangle with just a few speckles of black. The problem is that our pencil sketch is made up of shades

of light gray which fall below the default threshold required by the Brightness Cutoff option. This method of pre-processing the trace simply converts the dark pixels that fall below the threshold to black, and converts any that fall above it to white. By looking at a histogram of the sketch in The GIMP, it's clear that there is little content to the darker left-hand end of the scale.



There are two fixes for this: either the source image has to be made darker, or the threshold needs to be raised. Taking the latter approach, increasing the threshold to 0.90 (it runs from 0.00 to 1.00) gives a much better looking preview after clicking on the Update button.





Picking the right threshold level for any given image is largely a matter of trial-and-error. Usually, images with strong dark colors require a low value, whilst those with lighter hues will need a larger value. In an ideal world, this dialog would show a histogram of the image, and let you set the threshold by dragging a marker along it, dynamically updating the preview as you go. In lieu of such niceties, you have little choice but to tweak the threshold, update the preview, tweak it a little more, update it again, and so on until you achieve an acceptable result.

When you do finally get a preview that looks promising, you simply have to click the OK button to start the tracing process. Most of the time this completes almost instantly, but if you're tracing a particularly complex image, or using a particularly slow machine,

you may have to wait a little longer. During the tracing process the OK button will be disabled; the best indication that it's finished is when the button becomes enabled again.

At this point you will have a new path in the main Inkscape window, positioned exactly on top of the bitmap image. It will also be automatically selected and the raster image below will have been deselected. Unfortunately, this means that if your trace doesn't look right, you can't just change the threshold and hit OK to try again. Instead you have to move or delete the bad trace, then re-select the bitmap, and then finally you can adjust the tracing parameters in the dialog and try once more. It's only a few steps, but when you're trying to hone in on a suitable threshold by trial-and-error, it's a few steps too many.

You should always ensure that you move the final trace away from the bitmap image when checking the result to avoid the original image obscuring any holes or gaps in your trace. Here's how the finished Frankie trace looks:



It's not too bad, but there are several areas where the lightness of the pencil marks and the grain of the paper have conspired to break up the outline. A closer view of the eyes shows this effect quite clearly.

Sometimes this very rough appearance is exactly the right artistic effect, but, more usually, the point of creating a vector image is to give you something a lot smoother. You can try increasing the threshold before tracing again, but often this results in lines that are too thick and heavy – although it does usually fill some of the problem gaps in the process.

Practically, though, if you want good results from auto-tracing, you have to have a good source image to begin with. This means blocks of flat, contrasting colors rather than tints, gradients, and

thin lines. A few minutes spent in a bitmap editor can save you a lot of time in Inkscape later. In practice, I never use auto-trace on a pencil sketch. A sketch might be suitable for manual tracing, but there's just not enough contrast and clarity for Inkscape and Potrace's algorithms to do a reliable job. Here's how Vince and I actually create the vector outlines for our 'Monsters, Inked' comics:

- Create a pencil sketch to decide on the shape and position of the characters and objects.
- Ink over the pencil sketch using black ink and marker pens.
- Erase any pencil marks as thoroughly as possible.
- Scan the image.
- Load the scan into The GIMP, and adjust the contrast even further to give a clear distinction between black and white.
- Use the eraser tool in The GIMP to remove any stubborn pencil lines that were picked up when scanning.
- Trace the image in Inkscape using the Brightness cutoff option with a suitable threshold (usually the default of 0.45 is fine, given the preparation above).

After going through these steps, the result is much better

than the Swiss-cheese trace we had earlier. There are still some areas that need to be manually tidied up – mostly where the tracing process has filled small areas – but, overall, we've got a vector that's crisp and clean, and is a good representation of the artist's original intentions.



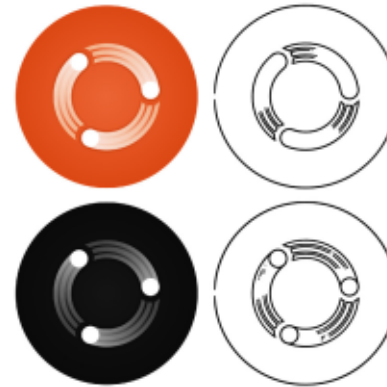
You can download an inked copy of Frankie's head from the link at the end of the article if you want to try for yourself.

Now, let's take a look at the other two algorithms in the Single Scan section of the dialog. I find these to be less useful than the simple Brightness Cutoff method, but the results vary greatly from image to image, so it's always worth giving them a try if you're not getting the result you want.

The Edge Detection method, unsurprisingly, runs the bitmap

image through an edge detection algorithm before vectorising the result. Edges are defined by changes in brightness within the image – a transition from dark to light or vice versa. The Threshold value sets the amount of change that is needed in order for a pixel to be considered to be an edge. Higher values mean that only really obvious edges are counted, which can lead to broken lines. Set it too low, however, and almost any color change is counted as an edge.

It may seem obvious but edge detection works best on images with strong edges. Boldly colored logos or black-and-white line art can give good results, but, as always, you may get better results if you tweak the source image in a bitmap editor first. For example, trying this method with the Full Circle Magazine logo worked reasonably well but kept losing the shape of the inner circles as the difference in brightness between those and the gradients was too small. By using The GIMP to convert the logo to grayscale and to adjust the color curve for better contrast, I was able to create a trace that preserved the outline of the circles.



The Color Quantisation algorithm takes a fundamentally different approach. In this case, the bitmap image is first reduced to the specified number of colors, each with an index number. This simplifies gradients and soft edges down to solid blocks of color. Then, a black-and-white image is created, splitting the colored blocks between black and white depending on whether the index of the color is even or odd. It's this black-and-white image that is finally passed to the Potrace code to produce a path.

It sounds more complex than it is, so I've simulated the process using The GIMP – although the end result isn't quite the same as that produced by Inkscape as the exact details of the algorithm it uses are different. Starting with an image of the Mona Lisa, the first step is to reduce the number of colors. I've

chosen to reduce it to 8 colors – it's this value that's set by the Colors spinbox in the Trace Bitmap dialog.



Our color-reduced image now has a fixed palette, with each color being identified by its index – a count of its position in the palette.



Because the Potrace code expects a simple black-and-white image, the final step before tracing is to reduce this palette further. This is done by converting all the odd indexes to black and all the even indexes to white.

That's the approximate process – now let's see what Inkscape actually makes of an 8-color quantisation trace of the Mona Lisa...



The results from the Color Quantisation method can vary wildly as you change the number of colors. A lower number tends to produce larger filled areas, losing details. Higher numbers preserve the details a little better, but result in a path with lots of nodes. Some values will result in the indexes being changed so that the black-and-white image appears inverted. You can see this clearly in the preview when you click on the Update button. In this case, simply check the Invert Image checkbox and hit Update again. This checkbox can also be used with the other two tracing methods, and can be particularly useful for tracing a light image on a dark background.

Automatic tracing works well for some images, and poorly for others. In almost every case, there will still be some manual cleaning

up to do, so knowing how to use the node editing tools, and how to trace by hand, will still be invaluable skills. Most importantly, try to get a good image to trace from in the first place, even if that means some work in a bitmap editor.

LINKS:

Potrace:

<http://potrace.sourceforge.net>

"Frankie" and other images:

<http://www.peppertop.com/fc/>



Mark's Inkscape created webcomic, 'Monsters, Inked' is now available to buy as a book from <http://www.peppertop.com/shop/>

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HOW-TO

Written by Ronnie Tucker

Write For Full Circle Magazine

GUIDELINES

The single rule for an article is that **it must somehow be linked to Ubuntu or one of the many derivatives of Ubuntu (Kubuntu, Xubuntu, Lubuntu, etc).**

RULES

• There is no word limit for articles, but be advised that long articles may be split across several issues.

• For advice, please refer to the **Official Full Circle Style Guide:**
<http://url.fullcirclemagazine.org/75d471>

• Write your article in whichever software you choose, I would recommend LibreOffice, but most importantly - **PLEASE SPELL AND GRAMMAR CHECK IT!**

• In your article, please indicate where you would like a particular image to be placed by indicating the image name in a new paragraph or by embedding the image in the ODT (Open Office)

document.

• Images should be JPG, no wider than 800 pixels, and use low compression.

• Do not use tables or any type of **bold** or *italic* formatting.

If you are writing a review, please follow these guidelines :

When you are ready to submit your article please email it to:
articles@fullcirclemagazine.org

TRANSLATIONS

If you would like to translate Full Circle into your native language please send an email to ronnie@fullcirclemagazine.org and we will either put you in touch with an existing team, or give you access to the raw text to translate from. With a completed PDF, you will be able to upload your file to the main Full Circle site.

REVIEWS

GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

- title of the game
- who makes the game
- is it free, or a paid download?
- where to get it from (give download/homepage URL)
- is it Linux native, or did you use Wine?
- your marks out of five
- a summary with positive and negative points

HARDWARE

When reviewing hardware please state clearly:

- make and model of the hardware
- what category would you put this hardware into?
- any glitches that you may have had while using the hardware?
- easy to get the hardware working in Linux?
- did you have to use Windows drivers?
- marks out of five
- a summary with positive and negative points

You don't need to be an expert to write an article - write about the games, applications and hardware that you use every day.





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Whether you need to access a document you have stored on a remote server, synchronize data between a Mac, Windows or Linux device, share important business documents with your clients, or just rest easy knowing all of your data is safely, securely, and automatically backed up - SpiderOak's free online backup, online sync and online sharing solution can handle all your needs!

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ASK THE NEW GUY

Written by Copil Yáñez

Hi, everyone! Welcome back to Ask the New Guy!

If you have a simple question, and you think a “zero-day remote root bug” is something you can catch from bad sushi, contact me at copil.yanez@gmail.com.

Today’s question is:

Q: What’s the difference between an update and an upgrade? Which one should I do? And when?

A: So you finally caught the wave and decided to install Ubuntu on your desktop (or laptop or Internet-enabled bike helmet, or whatever). You’ve made a great choice! Ubuntu users are the most intelligent, innovative, handsome human beings ever to walk the face of the earth. It’s true, I read it on Wikipedia.

The first thing you want to do is make sure you’re keeping your install up-to-date. Sure, everything seems to be working beautifully right now, so you might be tempted to just leave well enough

alone. If so, you’re like my dad and his 1982 Buick Electra Estate Wagon. That baby was state-of-the-art when Reagan was still in office. Every gear, cog and belt was designed to throw you down the highway at 70mph in absolute comfort, even going so far as to warm your butt because cold-butt is apparently a very serious condition in old people.

But no matter how gently he treats it (the car, not his butt), the belts have started to dry out and crack, the oil lines have developed leaks, and the idler arm broke loose when he loaned me the car and I unadvisedly went four-wheeling in a rock quarry because my buddy, Kevin, who never, ever offers to pay for gas, dared me to. So, yeah, unless you’re a mechanic, you never really know exactly what’s going on under the hood.

Thankfully, in Ubuntu at least, you don’t have to. Sure, you can get your hands as dirty as you want, chowning files and piping output to your heart’s content. But if you’re like me, you have more

important things to do, like write Walter White/Jesse Pinkman erotica. If that’s the case, you’re in luck. Ubuntu is super easy to keep running at peak performance.

First, let’s address the most basic part of the question. What’s the difference between updating and upgrading?

In Ubuntu, when we talk about updating, we’re really talking about asking a trusted source, “hey, what’s the latest version of the programs installed on my computer?” It’s like asking your bookie for the line on the Manchester United game. He’ll give you the odds, but he’s not going to place a bet on your behalf until you tell him to.

Upgrading, on the other hand, is placing the bet. It’s telling Ubuntu, okay, I’ve got a list of the most current versions of the software installed on my system, go ahead and upgrade to those newer versions.

While there’s a difference

between updating and upgrading, they’re really just two sides of the same coin. To keep your system running smoothly, you want to run them one after the other (starting with the update, followed by the upgrade).

How often should you be doing this? Once a week, at least; more often if you want to be extra safe.

As with most Ubuntu functions, you can do this at the command-line or with a mouse.

To do this at the command-line (and feel like a complete badass), open a terminal window (CTRL-T) and type:

```
sudo apt-get update
```

Press enter. You’ll be asked for your password. Give it and press enter. Stuff happens. When it’s done, type:

```
sudo apt-get upgrade
```

Again, press enter and give Ubuntu your password. Press enter.



Ubuntu will handle the rest. Now sit back and think about how nice a USB powered butt warmer would feel right about now.

If you prefer to use the GUI, no problem. Here's what you do.

First, if there are updates for your computer, Ubuntu will let you know with a popup.

If you see this popup, simply follow the prompts until your system is up-to-date.

If you don't have the popup, or want to check for updates yourself, go to the Dash (either click on the icon on the upper left or click on the Superkey, also known as the Windows Key, also known as the key I never use except when I accidentally hit it with my pinky).

With the Dash field open, search for Update Manager. In the window that comes up, click the Check button. This essentially replicates the apt-get update function. If there are any updates to install, click on the Install Updates button. Again, Ubuntu will handle the rest.

Done and done. Now you have

the most current versions of the software running on your computer. If there were any security patches, they were applied. Your system should be safe and stable.

If you ran the updates from the popup, you may see a window telling you that a new version of Ubuntu is available (for example, you're running 13.04 and 13.10 is available). Or maybe you heard there's a new version of Ubuntu out in the wild and you want to use it.

Should you upgrade?

The short answer is maybe.

The longer answer is the choice is up to you. See, distribution upgrades, the kind of upgrades where the version number (12.04, 12.10, 13.04, 13.10, etc) changes, are a little different than just updating, they add a side dish that's not included when you order the one-two update/upgrade combo meal.

Distribution upgrades add any new software packages that came out after the version you're running. If you want the newest software and features on your Ubuntu install, then go ahead and

upgrade to the newest distribution. But there's something you should keep in mind.

Upgrading your distribution might also remove out-of-date software, or files that conflict with the features on the new version. This is all fine and dandy if you don't need those files and old software. But what if something that gets removed breaks a program you needed or removes a feature you liked?

If you value stability over bleeding-edge software, you may want to err on the side of sticking to updates and upgrading your installed software only. In fact, you might consider only upgrading distributions when you see one labeled LTS. LTS stands for Long Term Support and refers to versions of Ubuntu that will be supported for the next 5 years, and have undergone more testing and hardening of their existing features. Your LTS version will still get updates and patches for a long time. Time enough for you to find another LTS to jump to.

If, on the other hand, you need the bragging rights that come with running your computer flat out, with the newest operating system,



do a distribution upgrade.

Okay, so you've analyzed your needs and decided you want to upgrade your distribution. To do this using the GUI, just follow the prompts after running the Update Manager and being told there's a new version you can install.

Believe it or not, this is the officially sanctioned and recommended way of upgrading Ubuntu to a new release. There are various ways to upgrade using the command-line, but when I went looking for them, I found talk of "removing PPAs," and "fixing residual packages," and "add lye to the ephedrine and agitate." Pretty sure that last one came from a Breaking Bad website I was surfing while I wrote this. Anyway, the point is that if you're coming to me to figure out how to do something complex at the command-line, something that could easily bork your system, well, I'm simply not going to enable such self-destructive behavior. Go play Ubuntu Roulette somewhere else, my friend.

Keeping your system patched, updated and running smoothly isn't particularly sexy (unlike most

Ubuntu users). But it will keep you cruising like my warm-buttred father in his Electra Estate Wagon. And isn't that what life's all about?

Good luck and happy Ubuntuing!



Copil is an Aztec name that roughly translates to "you need my heart for what again?" His love of women's shoes is chronicled at yaconfidential.blogspot.com. You can also watch him embarrass himself on Twitter (@copil).



Linux has always had a reputation of being a good way to reuse old computers. In fact this is how free software slipped into The Working Centre's Computer Recycling Project. The project began in the late 1990's as a way for those out of work to get access to a computer to create resumés. Around mid 2001, one of the project volunteers started putting together a Linux distribution based on Debian GNU/Linux called the Working Centre Linux Project (WCLP). WCLP was a desktop distribution designed to run on a 486SX/25 with 16MB of RAM and a 400MB hard drive. WCLP was the start of free software use in the project.

Around mid 2005, the volunteers developing WCLP abandoned the project. Other refurbishing-oriented distributions, like RULE (Run Up-to-date Linux Everywhere), were becoming pretty popular, and Ubuntu Linux was on the horizon. It was also around this time the project implemented a SAMBA file server used in conjunction with

cloning software. The SAMBA server worked so well that other parts of The Working Centre – besides the Computer Recycling Project – started storing data there. The original SAMBA file server has gone through several upgrades over the years (from hard drive to motherboard), but still uses a modified version of smb.conf that we started with.

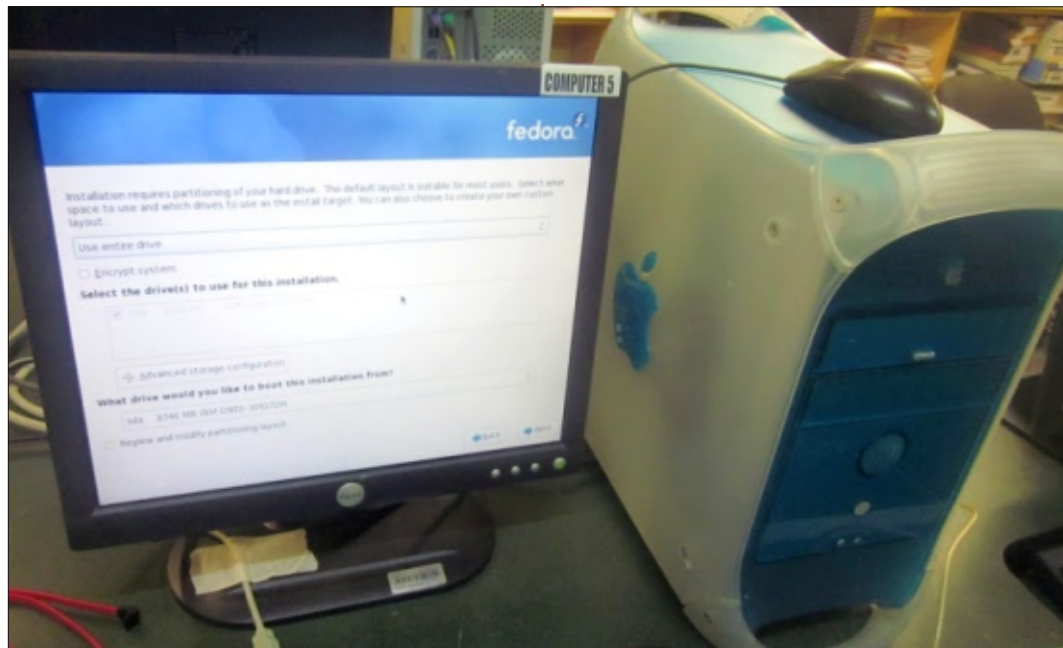
One of the great salvations for the project has been the fact that we've been able to take a hard drive running Linux out of one

system and stick it in a completely new system with relatively few problems (not something you can do with proprietary OS's because of the whole licensing issues, not to mention driver issues). We had a major hardware failure in one of our systems (we hadn't looked close enough at the motherboard), and were able to use the hard drive in a computer with a motherboard from the same manufacturer but with a different model number. That system was running a desktop Linux distribution and we were able to

restore it on the new motherboard without too much trouble.

Late 2005, I started working closer with the project to take it from a once-a-week drop-in project to a 5-day-a-week operation (we've since scaled back to 4 days a week to allow for other work to take place in the space). One of the projects I'd been working on while volunteering was a PHP/MySQL parts database. The database was hacked together using a script I'd found. That project was the start of what became a custom PHP/MySQL Point-Of-Sale (POS), based on an existing open source project: OSCommerce. A few months after I started, we had the opportunity to switch spaces into a much more spacious building. During the downtime, we took the opportunity to better lay out the POS. One of our on-staff IT developed the interface, while a programmer we hired for a short period worked on coding the POS.

We actually considered Microsoft Dynamics before hiring anyone for the project, but, at the



time, it wasn't available in Canada, and, even if it was available, we weren't convinced that it would have given us the flexibility we needed. The decision to hire a programmer and develop the POS ourselves turned out to be a wise decision. The programmer we hired completed the project early, so early that we didn't really get a chance to completely debug the application. But since we had access to the source code, and we had someone on staff who was better with PHP than me, we could debug the application without begging a third-party company to make changes. It also meant that even I, with my limited PHP/MySQL knowledge, could make minor changes to the code (which I've done over the years).

For the past several years we've had a volunteer come in once a week and maintain the code for us. The volunteer has been cleaning up the code, making a few changes to the interface, and separating the code from the OSCommerce back end, so we can release the project as a completely independent FLOSS POS.

As the project grew, we moved

a lot of documentation to an Intranet I set up on a system using the Drupal CMS (Content Management System). The system holds a lot of forms and paperwork that volunteers need, as well as information about The Working Centre, the Computer Recycling Project, environmental regulations, safety processes, and processes for building, testing and repairing systems.

One of our staff has since added a PXE network boot server on the same machine – to allow us to deploy a variety of Linux distributions. We also keep everyday tools on the PXE server

including Darik's Boot and Nuke (DBAN), memtest86+, HDT (Hardware Detection Tool), and Live Linux environments. Before the PXE boot server, volunteers were always asking me to burn a DBAN/memtest86/other tool CD. Now, volunteers either set up the computer to network boot in the BIOS, or use an Etherboot gPXE CD for systems that don't support network booting in the BIOS.

At the core of the Computer Recycling Project is a table with 8 workstations (7 running Xubuntu, 1 running Ubuntu). Each workstation is on a Keyboard Video Mouse (KVM) switch to allow volunteers

to work on repairs or builds on the top, and search for information using the workstation below the table. On another table, we have a special system; a tower system with a couple of IDE and SATA controller cards in addition to the IDE and SATA ports on the motherboard. This system is used for DBAN-ing hard drives (we hate to say wiping hard drives because technically DBAN overwrites data on the drives). DBAN resides on our PXE server, so normally all volunteers have to do is hook up the hard drives, then turn on the DBAN machine. We jumper all IDE drives to cable-select – to make the process simpler for volunteers without a lot of computer building experience.

On the back wall behind the workstation table are 5 monitors and 4 KVM switches. The four monitors with KVM switches all have 4-port KVM switches, so up to 16 computers can be set up on the back wall. Normally, this counter is used only for things that take a bit more time: running memtest86+ on a system for example. The 5th monitor is connected to a small-form-factor computer running XBMCbuntu (a Linux+XBMC



distribution) that replaced an aging stereo with a failing CD tray.

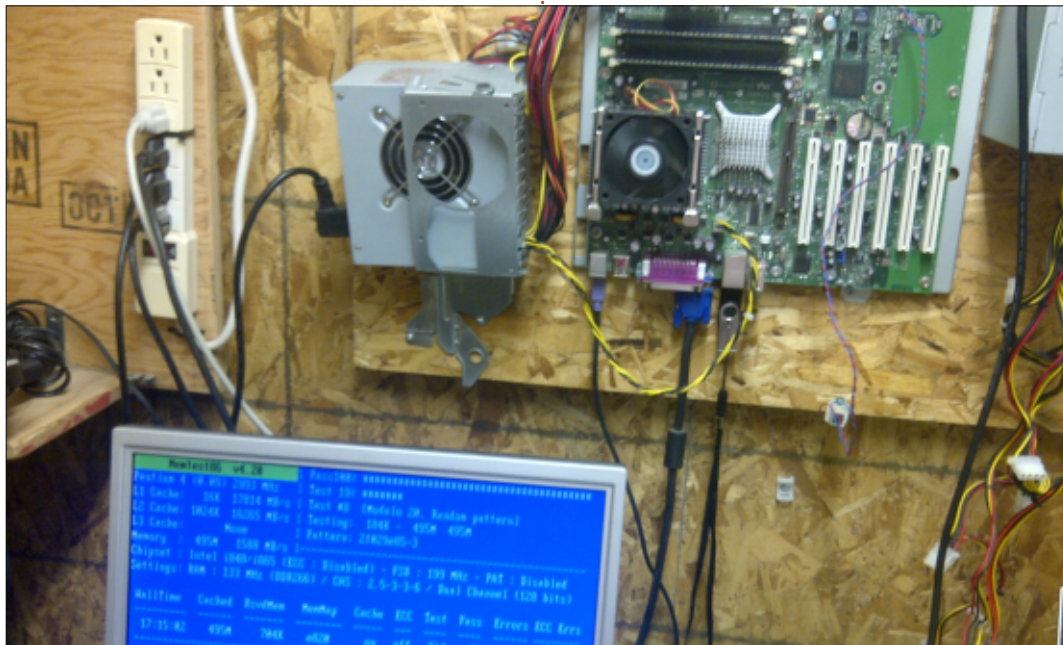
In another area of Computer Recycling lies one of the more interesting work areas where 3 motherboards are mounted on the wall. These motherboards are used to test different types of RAM (currently we're only testing DDR and DDR2 since we rarely see any older SDRAM or newer DDR3-based systems). These systems all boot off a multi-tool USB key created using Yumi multiboot USB creator. We've also started using Phoronix Test Suite to more accurately gather information about video card RAM at this work area. Phoronix Test Suite has a system-info switch to show information about a system, including Video RAM (VRAM) information. The project gets a lot of systems with video cards that don't have VRAM information anywhere on the cards.

Without question, Free Libre Open Source Software has helped the project, and every year our organization budgets a small amount of money to give back to a few open source projects. Being able to look at the code has helped the project adapt to changes over

the years. When (in Canada) Goods and Services Tax (GST) and Provincial Sales Tax (PST) became a single Harmonized Sales Tax (HST), I was able to make the changes necessary to keep information on our POS about previous sales and deal with the new tax setup. One of our volunteers has updated the POS several times so we can show different reports we need to see. FLOSS has saved us the cost of upgrading software licenses every few years.

One of the side effects of having Linux on the computers used by volunteers is the change in attitude of many of the volunteers

from indifference towards FLOSS to one of appreciation. Volunteers see just how easy Linux installs on many of the systems we work with. When a volunteer does get stuck, it's usually because of a hardware fault in the equipment they're working with. Many volunteers have come in knowing nothing about Linux, and they now support people who arrive with Linux-related questions, or help recommend Libre software on other platforms. And it's because of FLOSS and the work of volunteers that we're able to help a lot of people without good access to technology.



RESOURCES:

The Working Centre's Computer Recycling Project - <http://www.theworkingcentre.org/computer-recycling/178>
WCLP (uses a very old kernel, out of date) - <http://wclp.sourceforge.net/>
RULE (tribute site) - <http://rule.zona-m.net/>
SAMBA - <http://www.samba.org/>
Memtest86+ - <http://www.memtest.org/>
Darik's Boot and Nuke (DBAN) - <http://www.dban.org/>
HDT - <http://www.hdt-project.org/>
Etherboot/gPXE - etherboot.org/wiki/index.php
XBMC - <http://www.xbmc.org/>
Yumi multiboot USB creator - <http://www.pendrivelinux.com/yumi-multiboot-usb-creator/>



Charles McColm is the author of *Instant XBMC*, and the project manager of a not-for-profit computer reuse project. When not building PCs, removing malware, encouraging people to use Linux, and hosting local Ubuntu hours, Charles blogs at <http://www.charlesmccolm.com/>.



MY STORY

Written by Thomas M. "Toad" Brooks

I have two root partitions on sda so that I can test a new version while maintaining an old one. Of course, I have the /home partition separate, and have swap and /tmp partitions on sdb.

With the expiration of Lucid Lynx, I needed to upgrade, but I remain very unhappy with Unity, so I decided to try Linux Mint Maya. Maya is an LTS version based on Precise, and has an expiration date of April 2017. I chose the Cinnamon version, which runs Gnome 3.

Prior to the installation, I ran:

```
dpkg --get-selections >
installed-software
```

on my Lucid partition to make it easier to reinstall the packages I have been using.

The installation ran flawlessly – something we have come to expect from Linux and Debian-based distributions in particular. Among other things, I noted that my wireless is working again, which has been up and down during my

time with Lucid. That alone makes me wish I had installed Mint a year ago.

Following the installation, I ran software update, installed the restricted video driver, and confirmed that my home directory was still intact. Again, no problems.

I tried:

```
dpkg --set-selections <
installed-software.txt
dselect
```

as well as:

```
sudo dpkg --clear-selections
```

```
sudo dpkg --set-selections <
installed-software.txt sudo
aptitude install
```

trying to reload the packages I previously installed. After about 10 minutes of thinking, both of these failed. They offered me some kind of manual method of resolving dependencies, but that seemed like more trouble, especially since I didn't know what all the dependencies were. I tried trimming the list of all "lib*" and

packages which might have been loaded because something depended on them, and still had no luck.

Finally, I opened the list in one window and Synaptic in another, and manually set everything I wanted. It would be really nice if there were a get-selections command that only got the top level packages, i.e. with nothing depending on them, which could then be used to reload packages when you have done a fresh install of a different version of Linux.

OPERATIONS

I like a bare desktop, and always set a black background. I was quickly able to set four workspaces. and saw them numbered 1 through 4 in my menu bar. Some of the tools I regularly use had been updated, which means they set their configuration after being launched. For those which then had two .conf files, I was quickly able to set the configuration choices I wanted.

Movies and emulators in particular ran very slowly. The new graphical system monitoring tool is cute, but requires a huge percentage of CPU horsepower. Instead, I used top to demonstrate what was taking all the time. Cinnamon itself is the culprit, requiring about 5% of one CPU when quiescent, and an entire CPU when something which does screen writes is active. I would hope that the Cinnamon developers put some thought into optimizing it. My next laptop will probably be a 4-core, but that doesn't mean that a window manager which requires an entire CPU for itself is a good thing.

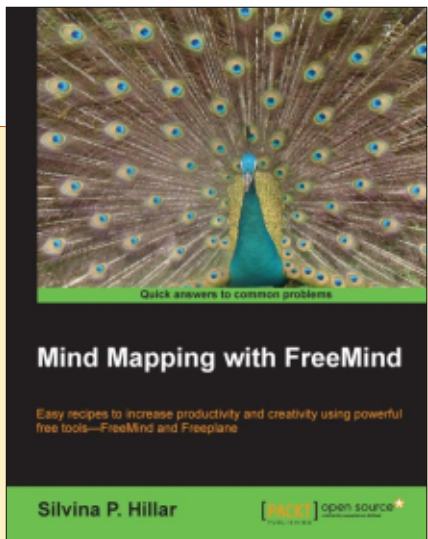
I will probably look for and download Gnome 2, which would make this effectively the MATE version of Mint Maya, to see if the heavy CPU load is present there as well. I'll write and let you know how it works.





BOOK REVIEW

Written by Ronnie Tucker



Language : English

Paperback : 146 pages [235mm x 191mm]

Release Date : October 2012

ISBN : 1849517622

ISBN 13 : 9781849517621

Author(s) : Silvina P. Hillar

Available as: eBook or Print with eBook.

Ask any creative person to explain how they come up with ideas, and I'm pretty sure they'll end up talking about mind maps. If you're unsure as to what a mind map is, here's a quick

definition from Wikipedia:

■ ■ *A mind map is a diagram used to visually outline information. A mind map is often created around a single word or text, placed in the center, to which associated ideas, words and concepts are added. Major categories radiate from a central node, and lesser categories are sub-branches of larger branches. Categories can represent words, ideas, tasks, or other items related to a central key word or idea. Mind maps can be drawn by hand, either as "rough notes" during a lecture or meeting, for example, or as higher quality pictures when more time is available.*

Essentially, you begin with one word, then branch out from there using other words and possibly even decorating it with doodles. The idea being that all this will help your mind come up with new possibilities. Mind mapping has a myriad of uses – from people studying information, book writing, and even just brainstorming – so learning how to use it is definitely a good thing.

Mind Mapping with Freemind

Normally, mind mapping is done on paper (or even a whiteboard), but this book uses the Freemind application which is free for all major OSes and written in Java.

It's always best to start at the beginning, and the book starts by showing you how to create a new mind map in Freemind and adding your first, and main, word – which is called a root node. Next is adding child nodes – the words which are branching off from the main word. Formatting is important, and you have many options for editing and colouring text.

Of course, a pretty mind map isn't the be-all and end-all of it. No, Sir. Now it's time to give the child nodes their own family and add further decoration to the map.

Chapter two discusses the proper wording to use in mind maps. Mind maps aren't for waffling on. Think of them as being like a Google search. If you choose the right words, you'll get the result you desire. Wrong words will

take you on an often unwanted tangent.

The author then switches to using Freeplane. Another mind mapping application which is, thankfully, also compatible with Freemind. The reasoning behind this is that Freeplane seems to allow adding words next to an inserted connector line. Why they didn't just use Freeplane for the whole book then... is beyond me.

The author then exports the mind map to a PNG and uploads it to wikispaces with MP3 attachments. Personally, I'd recommend using MindMup or any of the Google Drive mind mapping add-ons as they'll save your map to your Google Drive space. But, each to their own.

Around half way through the book, the author begins adding icons to her map, which, while making it look nice, can also help group/tag words and can also help spark new ideas.

Chapter three shows how to



insert images (that you've made, or downloaded) into your mind map. Even using Flickr images... which is a nice touch.

The fourth chapter introduces hyperlinking to the mind map. This includes linking to local information/files.

Now, nearing the end, it's time to learn how to export your map to HTML, vector, Flash, and even LibreOffice (or OpenOffice, as they call it in the book).

This is an excellent guide to both mind maps and Freemind, but I just wish the author hadn't used such garish looking maps! She's using blue, purple, pink, and a khaki green on a white background. Awful colouring choices and it makes the book look slightly amateurish.

As I said in the XBMC book, I do like the Pakt quick guides, but don't be deceived into thinking that this is 146 pages of information. It's not. The first 15 pages are copyright info and preface stuff, and the last eight are the index and info. So really, you're getting 120-ish pages.

Still, if you need a crash course on mind mapping and Freemind, then this is definitely a good book to get.



LINKS:

Freemind:

http://freemind.sourceforge.net/wiki/index.php/Main_Page

Freeplane:

http://freeplane.sourceforge.net/wiki/index.php/Main_Page

NOTE: both of these applications should be in your distro repo.

Wikispaces:

<http://www.wikispaces.com/>

CONTENTS:

Chapter 1: Creating a Mind Map: Dos and Don'ts

- Introduction
- Ordering a mind map
- Visual attraction
- Adding different types of nodes
- Usage of icons
- Exact text
- Boundaries and branches
- Writing sufficient information
- Adding necessary notes

Chapter 2: Writing a Mind Map: Using the Right Words

- Introduction
- Keywords
- Representing the subject matter
- Connecting words and lines
- Length of lines and words
- Writing noun phrases after listening to MP3 files
- Uploading the mind map to wikispaces.com
- Developing a radiant hierarchy through word sizes
- Associating ideas through words and icons

Chapter 3: Picturing a Mind Map: Using Visual Thinking

- Introduction
- Inserting an image
- Developing a graphic technique
- Working with bitmaps
- Designing SVG for mind maps
- Photographic mind map
- Sizing an image
- Inserting an external object from Flickr

- Using time icons

Chapter 4: Adding Hyperlinks and Linking the Mind Map

- Introduction
- Linking to an e-mail address
- Inserting and removing a hyperlink from a text field
- Adding a graphical link to nodes and changing its color
- Adding a local hyperlink
- Importing folders and subfolders
- Following a link to fold or unfold the tree

Chapter 5: Sharing a Mind Map: Using the Best of Mobile and Web Features

- Introduction
- Exporting a branch as a new map or HTML
- Exporting the mind map to bitmaps or vector graphics
- Uploading the mind map on Flickr and sharing it
- Exporting the mind map as HTML
- Exporting the mind map as XHTML
- Exporting the mind map as Flash
- Exporting the mind map as an OpenOffice Writer document and uploading to Google Docs
- Viewing an interactive mind map in a web browser



SOFTWARE SHOWDOWN

Written by Tushar Bhargava

The Unusual Suspects

Do we really need more Open Source music players? What's wrong with Banshee, Amarok and Rhythmbox?

BORN OUT OF FRUSTRATION

“Tomahawk was born out of frustration, frustration that the most widely used media players were designed to solve problems of a different era. No longer do we need desktop music players built 10 years ago that jam in CD ripping, label makers, device syncing, into a massive wad of code that takes minutes to even launch.”

Jason Herskowitz, part of the Tomahawk team, was brutally honest in enumerating the reasons for a new music player:

- Social music services are fundamentally broken given that everyone uses different sources - can't there be an interoperability layer that enables users of different music services to easily share/listen?
- Why can't I easily listen to all the music I have scattered across multiple computers, at multiple

locations, from a single interface?

- When I am reading a website that talks about a song, and I own that song, why can't I play my copy directly from that page?
- Why can't I subscribe to, and import, playlist metadata from all over the web - and then have that resolve against any/all songs that I have access to?
- Why do I have to listen to songs I have on my hard drive, and songs from services I subscribe to, in totally different user experiences?

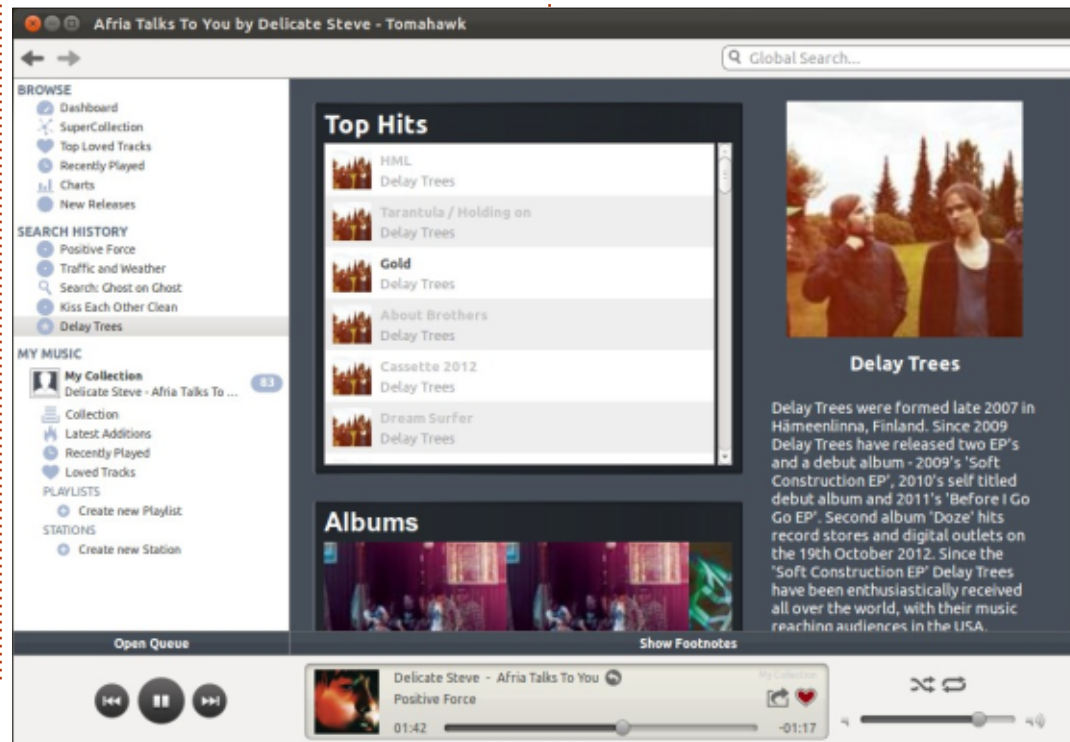
NOT REALLY A PROTEST

Clementine creator David Sansome explained his reasons for starting the project. *“I started coding Clementine in November 2009. I'd just upgraded my distro to a new version which came with Amarok 2.0, and I decided I really didn't like it. I tried to find a better music player, but I couldn't find anything that was as awesome as Amarok 1.4, which I'd been using since about 2005.”*

Mr. Sansome went on to clarify, *“I wouldn't say Clementine was a ‘protest’ against Amarok 2.0. I think Amarok has some awesome developers with some really passionate opinions about where they want their software to go and what they want it to look like. Open-source is really fun because it lets developers do what they enjoy with no strings attached.”*

USER INTERFACE

Tomahawk has a dynamic two- or three-column user interface – depending upon the option selected. The central dashboard consists of three panes - ‘Recent Additions’, ‘Newest Stations and Playlists’, and ‘Recently Played Tracks’. The music controls are located at the bottom – with shuffle, repeat buttons, and volume control. There is a global search bar in the top right-hand corner. There are also ‘Back’ and ‘Forward’ arrows that serve a function similar to those in browsers; indeed Tomahawk is like a browser albeit a musically inclined one. In a nutshell, the UI is



straightforward, modern and intuitive, it has everything you need in a music player. One interesting point is that Tomahawk doesn't support rating tracks, you simply 'love' a track – represented by a heart icon (Last.fm also has a similar system). The approach is interesting, some power users may feel the omission in making automatic playlists; however, I like the simplicity of the idea. Tomahawk has a notification icon that offers the standard 'Play', 'Stop', 'Previous' and 'Next' track options.

Clementine has a fixed three-column UI. The first column essentially consists of broad categories, you choose whether you wish to search, go to your local library, browse your hard drive, see connected devices, or use Internet related features. The second column then shows the options available within each of the categories. The third column has the standard music list interface with the inclusion of a unique moodbar. The list of music shown is a playlist. Clementine has both normal and automatic playlists. The music controls are again at the bottom and are similar to Tomahawk. Overall, the UI is

simple enough but, compared to Tomahawk's, seems a bit cluttered. Clementine also has a notification tray icon.

INTERNET INTEGRATION

Here's where Tomahawk excels. From the beginning, Tomahawk was designed to be a music player for a fully connected world. Tomahawk offers seamless integration with Last.fm, SoundCloud, Jamendo, Grooveshark, Spotify, and many more. Further, Tomahawk can identify other Tomahawks on the network and allow you to listen to your entire library from one location. Tomahawk uses the

power of the Web to collect meta-data for your collection. It not only auto-magically retrieves album art but also has a feature called 'Artist Page' – which gives you a sufficient bio of the artist and his work.

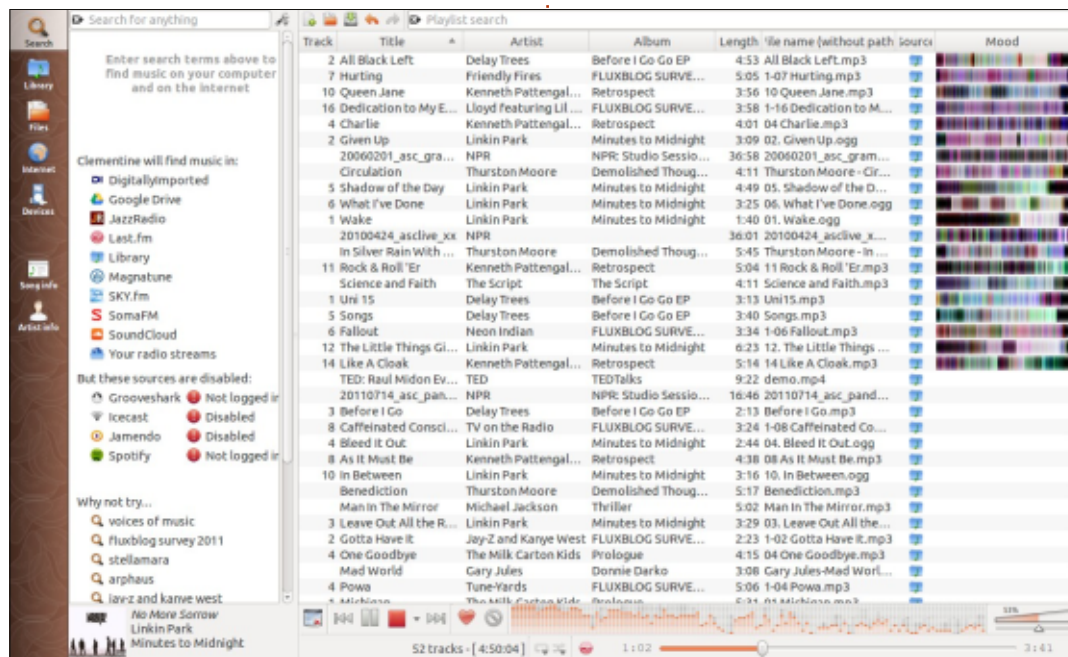
Further the 'Artist Page' points you to new music by listing 'Related Artists'.

Tomahawk is meant to be a social player - it allows you to see what your friends are listening to. Conversely, your friends can see what you're listening to. If you don't want the whole world to know which songs you're listening to, you can choose 'Listen Privately' from the 'Controls'

option in the Universal menu. One criticism I have is that 'Listen Privately' should be the default option, saving users from any hidden surprises.

The most important feature of Tomahawk, however, is that it provides an interoperability layer for music. If you chance upon a song while browsing through the albums, and you have a copy of it on your own library, just click on it and Tomahawk will find it and start playing. Whenever you open a song, Tomahawk shows you the rest of the songs in the album in gray if you don't own them. Incomplete meta-data is simply not a problem for this music player.

Clementine is not far behind either with its easily accessible 'Song Info' and 'Artist Info'. It uses the Web to provide lyrics for the song, artist bio, and similar artist recommendations. It too offers integration with Last.fm, Jamendo, SoundCloud, Spotify, Magnatune, and even Google Drive. Even though its UI may not be quite as avant-garde as Tomahawk's, it's Internet integration is commendable and certainly at par.



ADDITIONAL MUSINGS AND DEVICE SUPPORT

If Tomahawk was a person, he would have been an extrovert. With integration options including Google Talk, Jabber and Twitter, and the ability to chat with one's friends, you may be excused for wondering whether it's a music app or social networking client. However, snide remarks aside, the feature is a perfect option for users who want to share great music with their friends from the comfort of their music players.

Tomahawk disappointed me by failing to recognize my music player; this is one of the few blemishes in an otherwise sterling application.

Clementine has an interesting moodbar feature which looks great and is perhaps a slight nod to the ability of music to influence our feelings. Clementine also has a slightly unusual and eccentric sense of humour. In the 'Extras' menu entry, it has 'Rain', 'Kittens', 'Make it so!' and 'All Glory to the Hypnotoad!' options which, when clicked, cause some hilarious effects. I won't spoil the surprise by telling you beforehand, but

Clementine's quirkiness clearly shines through.

Clementine connected with my Samsung music player immediately. It took about a minute to scan my 300+ song collection. One small irritation was due to Clementine's playlist-based song view. If I wanted to view my MP3 player's entire music collection in the main pane, I would have to first drag them to the the playlist.

CONCLUSION

Clementine and Tomahawk are certainly two very good alternatives to the standard troika of Linux music players. Clementine is a great feature-rich music player that has a good interface, decent Internet integration and device support. Tomahawk, on the other hand, is one of the most innovative music players I have ever seen; it seamlessly integrates meta-data from the Web and music from your local collection into a pleasurable (and even social) listening experience.

Though I love the quirky Clementine, the winner of this showdown is Tomahawk for its

unique Internet-based approach to music organization.

SUMMARY - CLEMENTINE



The Good

- Great device support.
- Unique and aesthetically pleasing moodbar feature.
- Great Internet integration options.

The Bad

- Slightly cluttered UI.
- Playlist-based music management can sometimes be irritating.

Website: <http://www.clementine-player.org/>

Available on: Linux, Windows and Mac OS X



SUMMARY - TOMAHAWK

The Good

- Amazing Internet integration - shows artist info, album art and recommends other artists (without even signing into Last.fm).

- Social features reflect the new fully-connected world, and will make listening to music an even more joyful experience.
- Seeing what your friends are listening to allows you to discover more great music.
- Clean, modern UI that looks amazing.

The Bad

- Device support issues.
- 'Listen Privately' should be the default option.

Website: <http://www.tomahawk-player.org/>

Available on: Linux, Windows, Mac OS X

THE WINNER OF THIS SHOWDOWN IS

Tomahawk!



Tushar is a 17-year-old Indian who loves Ubuntu/FOSS. He programs in Java and C++, enjoys writing and, recently, making Android apps. If you enjoyed this article, his blog is at tusharbhargava.wordpress.com for more articles.



LETTERS

If you would like to submit a letter for publication, compliment or complaint, please email it to: letters@fullcirclemagazine.org. PLEASE NOTE: some letters may be edited for space.



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ubuntuforums.org/forum-display.php?f=270

REMMINA

As a systems admin in a predominantly Windows environment, I spend a lot of time using Remmina from my workstation. I recently upgraded two of my servers to Windows Server 2012R2 from Server 2008R2. I had been able to RDP into those servers from Remmina with no problems – until after the upgrade was complete. Remmina now just returned a "cannot connect" error message. I checked on the server end that no remote settings had changed, then tried connecting with the command-line rdesktop. This connected and displayed the server desktop with no problems. I had a look at Remmina more closely. When I clicked to edit a connection, I noticed the Advanced Tab. There is an option for Security here which is set to Negotiate by default. I changed this from negotiate to RDP (drop down selection so easy to change) and clicked on Save. The problem is resolved and Remmina connects without trouble again.

Hope this helps someone.

Iain Mckeand

LUBUNTU

I've been using Ubuntu since version 7.04 and all on the same desktop computer. It's a Dell Dimension 3100 and has a Pentium 4 processor; it came with a 160Gb hard drive and 512Mb of RAM. I updated the RAM to 2Gb, which is the maximum the motherboard will take and when I ran out of space on the hard drive I bought a 750Gb drive to increase space. As I've taken more photos and put more music on my iPod, that space disappeared and so I have had to upgrade the hard drive again. This time I bought a 2Tb drive, so that should last me for another few years!

As Ubuntu got better and better, it ran slower and slower on my old machine, even with the hardware upgrades. When I bought the 2Tb drive a month ago, I did a fresh installation of 13.10 but it proved to be the slowest Ubuntu

yet. I spent quite some time following all the tips on speeding Ubuntu up. However, it just wasn't enough; the computer was still frustratingly slow.

I can't live with this slowness and a new computer is out of the question for the moment. I had to give up Ubuntu. The obvious answer was - Lubuntu. So, I backed everything up, wiped the hard drive and did a fresh install of Lubuntu 13.10. OK, so it doesn't look as good as ordinary Ubuntu, it sacrifices good looks for speed. I even missed Unity - can you believe it? But Lubuntu has restored the speed that I used to have and that's a trade off I'm very happy to make at this point. After doing the fresh install, I was able to restore all my files via Deja Dup and now everything is back to normal.

In closing, I would like to thank everybody involved in all flavours of Ubuntu for their contributions. It has made a real difference. Thank you all.

Chris Burmajster

FULL CIRCLE NEEDS You!



Without reader input **Full Circle** would be an empty PDF file (which I don't think many people would find particularly interesting). We are always looking for articles, reviews, anything! Even small things like letters and desktop screens help fill the magazine.

See the article **Writing for Full Circle** in this issue to read our basic guidelines.

Have a look at the last page of any issue to get the details of where to send your contributions.





Q&A

Compiled by Gord Campbell

If you have Ubuntu-related questions, email them to: questions@fullcirclemagazine.org, and Gord will answer them in a future issue. Please include as much information as you can about your problem.

Q Did you ever find a version of Flash for old processors which do not have SSE2 instructions?

A Yes, thanks to **Temujin** in the Ubuntu Forums. First, completely remove all flash packages and close Firefox. Then run these commands:

```
cd ~/.mozilla
```

```
mkdir plugins
```

```
wget
https://github.com/downloads/
webgapps/flashaid/flashplayer
11_1r102_63_linux.i386.tar.gz
```

```
tar xzf
flashplayer11_1r102_63_linux.
i386.tar.gz
```

```
mv libflashplayer.so plugins/
```

Q I have LibreOffice installed, but I can not use the database part?

A It doesn't come in LibreOffice by default, as it's less commonly used than the other office applications. Just install it from the Software Center, or run "sudo apt-get install libreoffice-

base" in a terminal.

Q On a freshly installed Saucy (13.10), my shutdown button disappeared after an update. How can I bring it back?

A Type in the command:

```
sudo shutdown now
```

When you start up again, the shutdown button should be back.

Q My computer is pretty new. I have been given \$30 to spend on technology. What should I buy?

A Get a 32 GB USB 3.0 flash drive and copy your current data onto it. If you ever swap programs, documents, music, videos or pictures with your friends, a big, fast flash drive is wonderful. I find that a USB 3.0 flash drive is faster than older ones, even when plugged into a USB 2.0 port.

TOP NEW QUESTIONS AT ASKUBUNTU

* Using Git as off-line alternative for Dropbox

<http://goo.gl/3vcyhJ>

* Nautilus - How to apply Zoom on the filenames, not just on the thumbnails?

<http://goo.gl/Wvp5A5>

* How to send sound using pulseaudio and shairplay to a Raspberry Pi?

<http://goo.gl/YBHVDn>

* Is there any way to set a greeting message in ubuntu?

<http://goo.gl/0v2BoZ>

* I can't install libdvdcss - script not finding medibuntu. How to get DVD playback?

<http://goo.gl/IQl0wN>

* How to view the `bash_history` file via command line?

<http://goo.gl/GglGiU>

* Why do we need to be root in

terminal for shutdown and restart?
<http://goo.gl/m14UwZ>

* No Dropbox icon in Ubuntu 13.10?

<http://goo.gl/Vo2Tmc>

* Picture of a spaceship occasionally appears on my monitor when switching monitors

<http://goo.gl/gtuRCi>

* What is the difference between man and man 7?

<http://goo.gl/dkA5t6>

* Xorg.conf (nvidia) Second Monitor getting settings of first

<http://goo.gl/pF1exy>

* What is Ubuntu's policy on keeping old kernels?

<http://goo.gl/FVBztZ>

* How will people upgrade from 12.10 to 14.04 after 13.04 is EOL?

<http://goo.gl/YNYpMI>

* How can I install the \$0 applications from the Ubuntu Software Center with apt-get?

<http://goo.gl/ukKgux>



TIPS AND TECHNIQUES

Remote Desktop

A current consulting gig requires that I use my computer at the client's office, from home. The connection has two parts: first establish a virtual private network connection to the office network, then set up a remote desktop session to my computer.

I installed OpenVPN from the repositories, then configured it. The instructions for Windows are clear: put your configuration files in this specific location. For Linux, the instructions are silent. After far too much Google searching, I found the answer: put the files wherever you want, then tell OpenVPN where to find them. (There's actually just one configuration file, but there are also "key" and "certificate" files. As a note, the exact same set of files works for OpenVPN in Windows.) I put the files in a folder called `vpn`, and put a short script on my Desktop:

```
cd ~/vpn
```

```
sudo openvpn --config client-
```

```
udp-1194.ovpn
```

I run the script, then provide my local password to satisfy `sudo`, then my name and password to log on to the virtual network at the office. The result is that I get an additional "tun" IP address, such as 10.1.5.26.

To connect to my computer, I installed `rdesktop`. Each of the computers at the office has remote desktop hosting (also known as terminal server), and the only way this works is if they each use static IP addresses, and an unique port for RDP. The port must be opened in the firewall, and forwarded to the specific computer.

I found that `rdesktop` didn't work properly in full-screen mode, so I ran it at 80% of my local screen. I put a one-line command on my Desktop:

```
rdesktop -g 80%  
192.168.168.58:11019
```

That gets me to a screen where I enter the username and password to use my office computer, then it's just like I am sitting at that keyboard. Well, a bit slower sometimes.

One word of warning: if someone is using the remote (Windows) computer when you connect to it by OpenVPN and `rdesktop`, they get booted off. They can then kick you off by logging on at the keyboard! (Typically, no data is lost through all this.) It might save some embarrassment if you phone ahead.



After a long career in the computer industry, including a stint as editor of Computing Canada and Computer Dealer News, **Gord** is now more-or-less retired.

Full Circle Podcast Episode 38, Just The Two Of Us

Your hosts:

- Les Pounder
- Tony Hughes
- Jon Chamberlain
- Oliver Clark
and Freaky Clown



from the
Blackpool (UK)
LUG

<http://blackpool.lug.org.uk>

In this Episode we announce the new format for the shows, talk about our hardware, review Issue 76 of the magazine and we have an interview from the STEM York Raspberry Jam.

Download



Super Meat Boy is a platformer that is very challenging. You play as a cube of meat who is trying to save his girlfriend (who is made of bandages) from an evil fetus in a jar wearing a tux. It's also no coincidence that Super Meat Boy shares its initials with Super Mario Bros. It is a pure platformer that, at its core, it's nothing but running and jumping. Meat Boy's goal is always the same: reach Bandage Girl who always gets snatched by Dr Fetus at the end of the level.

To anyone who has played an old school platformer, you know what is to come; you will leap from walls over buzz saws, crumbling caves and pools of needles (sounds delightful). The meaty hero sacrifices his own well-being to save bandage girl. So, in a game like this, you have to make precision jumps and turns; so... making the controls right is essential for this type of game – which it does. The game is a delight to control and Meat Boy feels responsive to the commands given.

Super Meat Boy brings back the difficulty of retro games such as Mega Man 2, etc. So you know that you will be dying... a lot... and, to show you how many times that you had to do it, it replays them after you accomplished the level, showing all the tries at once. So, having done a level a fair amount of times, it appears as a blood bath on your screen, and is very amusing and shameful at the same time.

The style of the game is also reminiscent of the old NES days, where it keeps it simple but is a delight to play. But, as I said, it is extremely difficult; make the smallest mistake and you will have to start the level over. And this will happen many times as there are no checkpoints, so, dying a hundred plus times at one level is going to happen – even for a hardcore gamer. The game also keeps a record of every death in the statistics menu; it became so tense that I had to use a controller to keep a grip of something as the tension rose after every death.

On your first play through the
full circle magazine #79



Super Meat Boy

the retro styled world that is Super Meat Boy.

In conclusion, Super Meat Boy is a fantastic game, and it should definitely be purchased by anyone seeking a challenge. But be prepared to curse a lot, and be ready to shake your screen as precision is needed. With lovable characters and an amazing soundtrack as well, this game cannot be missed.



David is a relative newcomer to the Ubuntu scene and really enjoying it so far. He loves games and is pursuing a career as a Games Designer. You can follow his exploits at: rhysforward.carbonmade.com



As a kid, have you ever had a dream to be a surgeon? Using drills and saws to open someone's ribcage and play with their lungs? Well, you can, and all from the comfort of your own Linux machine. Introducing Surgeon Simulator 2013 – an extremely fun game by Bossa Studios – a big thank you to Bossa Studios for sending us a copy of the game – to simulate a surgeon's environment. This cartoony game starts off, and instead of getting a generic menu asking you what you would like to do, you get a first person view of your interactive desk. If you play around enough, you can get Steam achievements. A little note: if you are at the desk, make sure to look over at the TV to see how to play the game. What is great is you can manipulate pretty much everything in this menu. To access the surgeries you must go to the clipboard. Then comes the surgery, which is quite fun and not that gory; you have all the surgeons tools at your disposal and to freely use on your patient, but watch the blood meter and blood-loss meter on the top right.

The good:

This game has no set goal to it. You can do whatever you want whenever you want. The surgeries are quite fun as you can use any tool you like to do the surgery. Playing around in the reception / desk has so many things to do. The interface is pleasing and easy to spot. For all you gamers who have special controllers (Hydra, etc), there is a special mode (still in development) to utilize these controllers. Also there is a Team Fortress 2 expansion update.

The bad:

This game has a huge learning curve, meaning not everyone can just pick it up and be a master at it; it has a very challenging set of controls, and, if you aren't perfect, it can be quite unforgiving. Also the game has no "objective" system (example: First break ribcage, take out lungs, take out heart...etc) – which could be helpful to people who haven't learnt the steps of surgery.

How to get the game: This game is available on Steam for

\$9.99, the installation is quick and easy.

The minimum specs are:

OS: Ubuntu 13.04

CPU: 2.0 GHz processor or better

Memory: 2 GB of RAM

Graphics: Radeon x850 or comparable

Hard Drive: 500 MB HD space

Additional: Requires keyboard that can have multiple keys pressed down at once, and this game is recommended to play with a mouse and not a trackpad.

Maker's Website:

<http://www.bossastudios.com/>



Gabriel is a video game enthusiast and is currently working with an indie studio to bring you a fun Steam Greenlight game.



Asign that Linux gaming is changing for the better was the recent release of Valve's multiplayer online battle arena video game Dota 2 on July 2013. Dota 2 was released for Windows on July 9, and a week later it was released for Mac OS X and Ubuntu through Steam. If you go to <http://blog.dota2.com/>, you will see some outrageous figures for the number of unique players who have played Dota 2 this month. Currently, that figure reads 6,490,186 which translates to about 6½ million players this month. Not only does Dota 2 hold the record for the most concurrent players in Steam history, but it has also been very well received by many critics, and was one of the most anticipated games to be released in recent history.

So what is Dota 2 and why is it so popular? First, a little bit of history is needed to understand the gigantic magnitude associated with Dota 2 and why it is so immensely popular. What began as a player-developed mod for Warcraft III about eight years ago,

soon became a fully fledged game and was called Defense of the Ancients. Valve, the successful video game development and digital distribution company responsible for the Steam game engine, saw this as a great opportunity and hired Ice Frog, the lead developer for Defense of the Ancients. Having hired Ice Frog, Valve released what came to be known as Dota 2 in one of the longest running betas ever. After three years as a beta, on July 2013 Steam officially released Dota 2 for Windows, Mac OSX and Ubuntu. Due in part to its huge popularity

while still just a beta, Dota 2 has a very strong community of players and an immense library of player-developed guides and forums. However, this doesn't mean that it will be an easy transition from being a newcomer to being an experienced player. What is almost unanimously agreed upon by other Dota 2 players is that there is no substitute to learning the game other than actually playing it and putting in the hours in front of your monitor with your mouse and keyboard. In fact, one of the biggest deterrents for playing Dota 2 is its very steep learning

curve.

If you don't already have the Steam game engine installed in your system, then you need to install it in order to play Dota 2. Steam is available for installation from the Ubuntu Software Center. Steam will then verify that you have the latest proprietary drivers available for your graphics card. Once you have installed the recommended drivers, you are ready to play Dota 2. One of the best things about Dota 2 is that, in order to play it, all you have to do is download it and install it without paying a single penny. The game follows the increasingly popular free-to-play model. Playing Dota 2 will not cost you anything. However, there is a Dota 2 store in which you can buy miscellaneous cosmetic items but it isn't necessary to purchase anything to become a better player or get advanced in the game.

Dota 2 does a really good job of introducing the core game-play concepts during its tutorial, yet I still recommend that you read



some of the online guides and tutorials so that, when you're ready to play online against other players, you don't come off as a complete and total newbie. There are 102 Heroes to choose from, each with its own unique abilities, weapons, spells, and equipment. A good understanding of what each Hero can do is needed in order to play the game well. The tutorial itself won't let you progress unless you've played with a variety of Heroes.

The concept of the game is pretty simple to understand and explain. There are two teams consisting of five players each who square off against each other in what is known as a multi-player online battle arena. The two opposing teams are called the Radiant and the Dire. Each player controls a Hero, which means there are a total of 10 Heroes battling it out against each other with five Heroes belonging to the Radiant and five Heroes belonging to the Dire. Each team must defeat the other team's Ancient to win the battle. However, along the way you must also destroy Towers and Barracks, as well as other Heroes and Creeps. Creeps are the computer-controlled bots that can

either help you or hurt you, depending on which team they're fighting for. An ordinary battle can last anywhere between 30-60 minutes.

Even though an average battle lasts about 45 minutes, a player is considered a newbie until he's got over 100 hours played, which speaks volumes about the dedicated fan-base and the level of commitment required to play the game. However, once you begin to

get the hang of it, the game becomes so addictive that playing 100 hours suddenly becomes a reality. It will definitely take a long time to master the game, but to understand it and have fun while playing it takes only a few hours, if you really dedicate yourself to it.

Dota 2 has blossomed into more than just a video game. There are many competitions for Dota 2 players to enter in which it's even possible to earn money. "The

International" is an international championship where teams compete for prize money. As of 2013, "The International" holds the title for largest prize pool in electronics sports history, having surpassed the record previously held by the "League of Legends" tournament. You can go to <http://www.joystiq.com/2013/08/04/dota-2-international-begins-prize-pool-over-2-8-million/> to find out more. Also, it is possible for anyone to actually watch other



battles. On the main screen your choices are Store, Play, Watch, Library, and Community. According to <http://blog.dota2.com/>, over one million people streamed this year's "The International" final battle.

MY GAMING SETUP

I played Dota 2 with my custom made desktop PC consisting of an AMD FX-6100 3.3GHz CPU (overclocked to 3.5GHz), an Asus M5A97-EVO motherboard, a Sapphire Radeon HD 5770 graphics card, 8GB of Kingston Hyper X RAM, and a 1TB Seagate Barracuda hard drive. The software used was Ubuntu 12.04.1 LTS with Unity desktop and AMD 13.1 proprietary graphic drivers.

CONCLUSION

In conclusion I would most certainly recommend this game to anyone. It is highly entertaining; the only downfall I found was the very steep learning curve experienced at the beginning. Once you get past the initial growing pains, you'll be greatly rewarded because you will have discovered one of the most deep,

complex, interesting and entertaining games available at the moment. In Dota 2 you've always got room to grow, learn new skills, discover things you didn't know, and you're constantly improving while you play. If you're looking for a game that will give you hundreds of hours of fun, then this is the game for you. You must also really dedicate yourself to being in front of the computer for about an hour at a time playing this game, otherwise don't give this game a try.

Pro's

- Having installed Steam, the game is very easy to install and it runs without any problems or glitches.
- Dota 2 is very, and I mean very, entertaining.
- Even after countless hours playing Dota 2, you've still got room to grow and things to learn.
- The graphics and sound are pretty awesome. The dialogue is also pretty entertaining.
- The way in which Valve has made Dota 2 available for online play definitely needs mentioning.
- If you don't like the character you're using, you've got 101 more to try out.
- It's FREE-TO-PLAY!
- The competition is fierce.

Cons

- To play Dota 2 it is recommended that you use the proprietary AMD graphics drivers, which for some FLOSS purists might be unethical.
- There is a steep, and I mean steep, learning curve. To be able to play at a competitive level (and that's what this game is really about), you need at least 50 playing hours under your belt.
- The Dota 2 community can be pretty cruel at times, especially if you're a newcomer.
- In order to play the game, you must be willing to devote about an hour at a time to playing it with no interruptions.
- The competition is fierce.

Overall, I give this game 4½ out of 5 stars only because of how hard it is to get started with it.



Oscar graduated from CSUN, is a Music Director/Teacher, beta tester, Wikipedia editor, and Ubuntu Forums contributor. You can contact him via: www.gplus.to/7bluehand or email: www.7bluehand@gmail.com



MY DESKTOP

Your chance to show the world your desktop or PC. Email your screenshots and photos to: misc@fullcirclemagazine.org and include a brief paragraph about your desktop, your PC's specs and any other interesting tidbits about your setup.



My system is a Toshiba Satellite laptop with:
Ubuntu 12.04 x64 (Dual boot with Windows 7)
Intel Core2 Duo @ 2.1GHz

4GB RAM
320GB HD

Wallpaper is generated by xplanetFX, with conky on the side.

Terminal is Guake. I've been using Ubuntu since version 6.

Bill Blankenship



It is a Multicom Kunshan W155 Design-Collection. I use Kubuntu 13.04, KDE 4.10.5.

Hardware: Intel core i7, 8GB DDR3 1333MHz SO-DIMM RAM, Intel HD Graphics 3000 og GeForce

GT 555M, Blu-Ray INTEL SSD 520 Series 240GB

I use Bumblebee to use the GeForce GT 555M card. Steam and other games are playing very well with Bumblebee.

Per Gylterud



This bold, big, etched font makes it so easy to read even when I am relaxing by reclining far back on the computer chair.

Hardware:
Graphics: Intel,
Processor: Intel Dual
Core 2.66 CPU Ghz, 2
GB RAM and 160 GB
memory.

Paul Joseph

My Desktop: Operating System: Ubuntu 13.04, Desktop Environment: Unity, Theme: Ambiance (Modified) Wallpaper: The background is a photo I took of a red eyed insect with 'golden'

striations outside my house (in Bangalore, India). Icon Set: Ubuntu Mono Dark. I have reduced Panel Opacity to 0 using Ubuntu Tweak.

I like the minimalistic look for

my Desktop, all the 'Desktop Icons' are placed in a file with the same name (reduces clutter). Please note that I have changed the font (using Ubuntu Tweak) to "Liberation Serif Bold", size 12.



I use Xubuntu 12.04 but I'm not a fan of putting any icons on my desktop so it's one of the first things I remove from it whenever I set up a machine for myself.

The theme is the default Xubuntu Greybird theme featuring a modified Nucleus (a minimalist conky by ~LovelyBacon) and Mr.

Tau, and the Tree by TJ (from the Saucy Salamander package).

Hardware: IBM T40p Thinkpad.
Specs: CPU: Intel Pentium M @ 1.6

GHz, RAM: 1024 MB + 512 MB,
Hard Drive: 40 GB

It's definitely low-powered hardware – and quite an old model at that – but I'm trying to say here that *ubuntu can make such old hardware useful, responsive, and even modern-looking again.

Joan Advincula



HOW TO CONTRIBUTE

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... or you can visit our **forum** via: fullcirclemagazine.org

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